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ABSTRACT

This report focuses on two separate aspects of the longitudinal study of innovative instruction called Studies of Innovation. These aspects are the innovation being studied (the Instructional Programming Model of the Individually Guided Education Program) and the procedures used in selecting research sites. Following the introduction, Chapter 2 describes the innovation, presents the reasons for selecting it, and explains the procedure used to measure implementation. Chapter 3 gives a historical account of Individually Guided Education in the nation and in Wisconsin. Chapter 4 presents a rationale for site selection procedures and describes the sampling plan. Chapter 5 describes the 13 schools that have agreed to participate as research sites. (Author/JM)

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Technical Report No. 494

FOUNDATIONS OF THE STUDIES OF IMPLEMENTATION: THE INNOVATION AND RESEARCH SITES

by

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Report from the Project on
Studies of the Implementation of Individualized Schooling

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- conducting and synthesizing research to clarify the processes of school-age children's learning and development
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- developing and demonstrating improved instructional strategies, processes, and materials for students, teachers, and school administrators
- providing assistance to educators which helps transfer the outcomes of research and development to improved practice in local schools and teacher education institutions

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ABSTRACT

In this technical report, we review some of the limitations of past studies of planned change and enumerate several criticisms that have been leveled against the body of knowledge so far assembled. In an attempt to help rectify some of these inadequacies, we propose a longitudinal paradigm to study this intrinsically dynamic phenomenon.

The R & D Center's Studies of Implementation is projected as a 3- to 5-year longitudinal study of some 13 schools committed to implementing an innovative form of instruction. Each of the schools is being observed; both qualitative and quantitative data will be collected and analyzed over the life of the project.

This particular report, however, confines itself to two key and interrelated issues: (a) a conceptualization of the innovation under focus; and (b) the procedures used to select and secure the research sites. More specifically, Chapter I provides an introduction and background while Chapter II presents a brief rationale for selecting the innovation of Individually Guided Education (IGE), in general, and the Instructional Programming Model (IPM), in particular, as the primary focus of the Studies of Implementation. These innovations are described and the procedure to be used in measuring the degree of implementation of the IPM is discussed. Chapter III serves to set the innovations in context by recording an historical account of the development and diffusion of Individually Guided Education. These matters are treated more generally on the national level and more specifically with respect to developments in the state of Wisconsin.

Beginning with Chapter IV, the emphasis of the report moves from consideration of the innovation to the issue of research site selection. Chapter IV presents a rationale for site selection procedure, specifies the sampling plan, and describes the sampling frame from which the sites were drawn. As will later become clear, the sampling frame was composed of all the identifiable elementary schools which are members of Wisconsin IGE leagues (i.e., networks of IGE schools). Chapter V concludes the report by describing the 13 schools which have agreed to participate as research sites for the Studies of Implementation throughout the next 3 to 5 years.

CHAPTER I

INTRODUCTION AND BACKGROUND

During the past few years, educators have felt a growing concern about the gap between theory, research, and practice. Mort (1964) documented empirically the slow pace of educational innovation and cited a half century lag between the creation and development of theoretically based educational programs and their institutionalization in the nation's schools. Recognizing the need for narrowing the gap, teacher educators, state departments of education, directors of research organizations, and local education agency officials have pushed to accelerate and improve the use of educational research and developmental results (Chase, 1970; Rogers & Svenning, 1969). The establishment of the R & D Centers and regional educational laboratories in the mid-1960's is but one reflection of the national concern for resolving this problem.

The growing interest in implementing complex educational innovations and change is also reflected in the swelling literature, e.g., Bentzen (1974); Charters et al. (1973); Charters and Pellegrin (1972); Gross, Giacquinta, and Berstein (1971); Pellegrin (1970); Schmuck and Runkel (1970); Abt Associates (Note 1); Levin and Simon (Note 2); and Rand Corporation (Note 3). There are many comprehensive reviews of the literature on change, dissemination, and knowledge utilization:

Fullan and Pomfret (1977); Hall and Alford (1976); Havelock (1969); Havelock (1972); Maquire (1970); Paul (1977); Rogers (1962); Rogers and Shoemaker (1971); Rosenau and Hood (1975); Short (1973); Sikorski (1976); and Gaynor (Note 4). Yet, despite all this, the early observation of Miles (1967), that no systematically drawn theory of social change exists, still holds. Rather, research has documented bits and pieces, and isolated only fragments of the larger dynamic. Unfortunately, due to the lack of comparability and focus among the studies, these fragments cannot be assembled except in the most vague and general terms. Moreover, the validity and substance of the mere pieces themselves are the subject of persistent scholarly debate.

Baldridge (1974), for example, contends that "unsuitable paradigms for studying change have been adopted, along with a focus on the analysis of the wrong problems" (as cited in Paul, 1977). Similarly, Giacquinta (1973) thinks that the literature on change is atheoretical, contains few explanations, and cannot be viewed with confidence because of inadequate research methods.

In brief, the following criticisms are among the more debilitating ones that have been levelled against the body of knowledge so far assembled.

1. The design of most studies has been cross-sectional, despite the intrinsically dynamic nature of the phenomena being investigated.

2. The emphasis of studies has been predominantly directed toward precipitating change rather than studying it.

3. Most studies have focused exclusively upon the early or adoptive phase of the change process to the neglect of all later phases.

4. Most studies have been restricted to the direct user-system, thereby assuring a closed-system analysis of a phenomenon most frequently described as being widely susceptible to influences from the external environment.

5. Most studies are primarily post-hoc in that their primary source of data has been the "after-the-fact" perceptions of users.

6. Most studies have been oriented toward documenting the fidelity of implementation (that is, the extent to which actual use corresponds to intended use) and thus, have avoided the more complex task of explaining how and why innovations are adopted.

Although thoughtless design and application have contributed to this malaise, no small part of the problem is attributable to the ephemeral nature of the change phenomenon itself. Consider, for example, the difficulties spawned in a directly traceable fashion from the definition of so central a concept as "innovation." Although the term innovation has been given many definitions, all encompass the basic notion of change. Beal and Bohlen (1968) define innovation as a change which involves not only a change in materials but also a complex series of changes in how they are used. Rogers (1971) says an innovation is an idea perceived as new by an individual concerned with adopting it. And, Bhola (1965)

defines it as a concept, an attitude, a tool, or two or more of these together introduced to an individual, group, institution, or culture that had not functionally incorporated it before.

Not so subtly hidden within these definitions is the inherent notion that the concept of an innovation has absolutely no meaning outside the historical context of a particular user system at a particular time. And it is this basic notion that plays havoc with the attempt to research the change phenomenon. Quite simply, if the existence of an innovation cannot be determined before the fact, how can one scientifically investigate its reason for being in the first place, as well as determine the process by which it is diffused, incorporated, adapted, or rejected?

The typical response of researchers has been to bow to the logic residing on the surface of the situation and use a post-hoc methodological paradigm. Under this paradigm, the researcher's observations and perceptions of an organization's current state of affairs lead to the deduction that the organization has changed from some prior point in time. The dynamics of the change process are then investigated through the post-hoc observations (i.e., recall and perceptions) of the participants. As a consequence of this methodological response, the change literature consists largely of anecdotal and personalized accounts which, unfortunately, have been criticized as being highly susceptible to the effects of cultural and social pressures. Hamingson (1973), for example, has noted that the ex-

pectations of the supporters of the innovation can create unrealistic pressure on the users of the innovation, a pressure which can easily cause them to provide feedback in line with the supporters' expectations rather than reality. And, more critically, self-report observations of the change process have been found to conflict with the results of other more controlled and objective observations (Behrmann, 1975; Fullan & Pomfret, 1977).

An alternative paradigm for investigating the process of planned change, one which is sorely underrepresented in the literature, might be called the longitudinal approach. Under this paradigm, an organization is targeted as a research site because the researcher anticipates that change will occur. The organization is then studied longitudinally, allowing early observations to serve as the benchmark for recognizing and depicting the flow and pattern of change. Participants are interviewed about their present rather than their past behavior. Undoubtedly, there are many reasons for the limited application of this paradigm, not the least of which is the ipso facto truism that the methodological design calls for a substantial investment of time and money. More substantively, the design does not ensure that the researcher will be entitled to observe the phenomenon of concern. Moreso than under competing paradigms, the selection of the research site looms large. Besides attaching critical significance to the selection of potentially fruitful sites, the very nature of the longitudinal paradigm tends to hinder the acquisition of these sites. For just as this particu-

lar design necessitates the substantial investment of the researcher's time, so too does it require an extensive commitment on the part of those observed.

These difficulties aside, it remains necessary to recognize the appropriateness of the longitudinal paradigm to study a phenomenon so intrinsically dynamic and so complex as the phenomenon of change in an educational organization. With funding from the National Institute of Education, this is precisely the type of investigation launched by the Wisconsin Research and Development Center for Individualized Schooling in 1978.

The R & D Center's Studies of Implementation is projected as a 3- to 5-year longitudinal study of 13 schools committed to implementing an innovative form of instruction. Each of the schools is being observed; both qualitative and quantitative data will be collected and analyzed during the life of the project.

This particular report, however, confines itself to two key and interrelated issues: (a) a conceptualization of the innovation under focus; and (b) the procedures used to select and secure the research sites. More specifically, Chapter II presents a brief rationale for selecting the innovation of Individually Guided Education (IGE), in general, and the Instructional Programming Model (IPM), in particular, as the primary focus of the Studies of Implementation. Chapter III set the innovations in context by giving an historical account of the development and diffusion of Individually Guided Education. These matters are treated more generally on the national level and more specifically within the state of Wisconsin. Beginning with Chapter IV, the emphasis of the report moves from consideration of the

innovation to the issue of research site selection. Chapter IV presents a rationale for site selection procedure, specifies the sampling plan, and describes the sampling frame from which the sites were drawn. As will later become clear, the sampling frame consists of all identifiable elementary schools which are members of Wisconsin IGE leagues (i.e., networks of IGE schools). Chapter V concludes the report by describing the 13 schools which have agreed to participate as research sites for the Studies of Implementation over the next 3 to 5 years.

CHAPTER II

IDENTIFICATION AND CLARIFICATION OF THE INNOVATION

Before investigating the process of implementing planned changes in education, a prerequisite task was to identify a number of schools which had committed themselves to a course of change. To be able to make comparisons across sites, it seemed warranted, perhaps necessary, to focus upon a set of schools attempting to implement a particular innovation. Given the historical involvement of the Wisconsin R & D Center with individualized schooling and the access to documentation, expertise, and resources so provided, it seemed both wise, profitable, and economical to target Individually Guided Education (IGE) as the innovation of concern.

"Individually Guided Education (IGE) is a comprehensive alternative to schools organized in either age-graded, self-contained classrooms or in subject-centered departments, and it represents a change of great magnitude" (Klausmeier, Rossmiller, & Saily, 1977, p. 1). Although modified and developed over a number of years (see Chapter III of this report), IGE is currently conceptualized as containing seven major components: (a) the multiunit organization; (b) instructional programming for the individual student; (c) instructional programming and use of compatible curricular materials

(d) evaluation for educational decision making; (e) home-school-community relations; (f) facilitative environments; and (g) continuing research and development (Klausmeier et al., 1977). As such, this complex innovation calls for substantial change to schools, both organizationally and instructionally. At the present time, over 3,000 elementary schools have proclaimed themselves as being IGE schools (Klausmeier et al., 1977, p. 4).

At first blush, it would seem that this large number of innovative schools provides a fertile laboratory for the study of planned change in general and the Studies of Implementation in particular. In one sense, of course, this is true. However, as the literature on change has frequently pointed out, proclaimed use or adoption is at best a tenuous predictor of the actual use of an innovation (Pincus, 1974). This observation has been borne out by the several studies which have documented remarkable variance in the structures and intentions of proclaimed IGE schools (Ashmore, 1976; Klenke, 1975; Popkewitz, Tabachnick, & Wehlage, Note 5). Moreover, the writings of the IGE developers themselves make clear that the seven components of the innovation are not perceived to be of equal importance. Even casual conversations with IGE users concur with this variance in usage diffused in the field, although the users' perceptions of relative importance among the components necessarily and fully correspond to those of the developers. As such, a primary question

emerges: To what degree is it reasonable to deduce with some certainty, that proclaimed IGE schools have, in fact committed themselves?

The historical evolution of the IGE innovation, which is recorded in some detail in the next chapter, has always held the unswerving objective of improving education in the schools by tailoring instruction to the needs of individual students. At first and less blatantly, this objective was pursued most vigorously with the multiunit structure. Under the present conceptualization, it is promulgated as the component termed "instructional programming for the individual student." Within the IGE context, instructional programming for the individual student is embodied in the Instructional Programming Model (IPM), a systematic procedure built about instructional objectives, continuous progress, preassessment, and criterion-referenced testing. According to Herbert Klausmeier, the prime-mover of IGE, "at the heart of IGE is the Instructional Programming Model for the individual student" (Lipham & Fruth, 1976, p. 13). The supportive nature of the remaining IGE components to instructional programming for individual students is alluded to in other writings by Klausmeier, as evidenced by the following:

> The multiunit organization was designed to produce an evironment in a school building which facilitates instructional programming for the individual student and the introduction of other components of IGE (Klausmeier, Morrow, & Walter, 1968, p. 18; emphasis added).

> The success of IGE and other forms of schooling depends heavily on the availability of curricular materials compatible with instructional programming for the individual student and the availability of appropriate evaluative procedures (Klausmeier et al., 1977, p. 17; emphasis added).

Hence, in agreement with other scholars who have considered this point (Popkewitz et al., Note 5) and in apparent agreement with the developers of IGE, it is deduced that the essential kernel of IGE is the IPM and the concepts it embodies. Elementary schools proclaiming themselves to be IGE schools have, at the lowest level of common denominator, committed themselves to changing their instructional practices in a fairly specific way to more closely meet the needs of the individual student. The other components of IGE, although clearly important in their own right, are seen as supportive in nature to the full expression of the IPM.

Therefore, while the other components of IGE will be carefully tracked and charted, the Studies of Implementation will focus most emphatically upon the IPM and the process by which it is implemented and the reasons for which it is adopted. Serendipitously, the strong correspondence between the IPM and such other conceptualizations of instructional design as differentiated instruction, designs clearly residing outside of the IGE context, will yield more widespread utility to the future findings of the investigation.

A Description of the Components of the IGE Innovation: The Developer's Perspective[1]

Although the components of IGE have been thoroughly described by its developers many times elsewhere (Klausmeier et al., 1977), a brief review would seem in order. Following this description, the IPM will be revisited and treated more specifically from a measurement perspective.

Instructional Programming for the Individual Student

> Adapting instruction to the needs of the individual is essential for improving the quality of education. To attain this aim of IGE, a model of instructional programming was conceptualized to facilitate each student's development in the cognitive, psychomotor, and affective domains (Klausmeier, Quilling, Sorenson, Way, & Glasrud, 1971; cited in Klausmeier et al., 1977, p. 15).

This systematic, cyclical, seven-step model, known as the Instructional Programming Model and illustrated in Figure 1, is built upon four interrelated characteristics: instructional objectives, continuous progress, preassessment, and criterion-referenced testing.

Teaching and learning in an IGE school are structured around two basic kinds of instructional objectives. Some of the objectives are explicitly stated and tied to criteria of attainment

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[1]To avoid distortion, this section closely follows the description of IGE provided by Klausmeier et al. (1977).

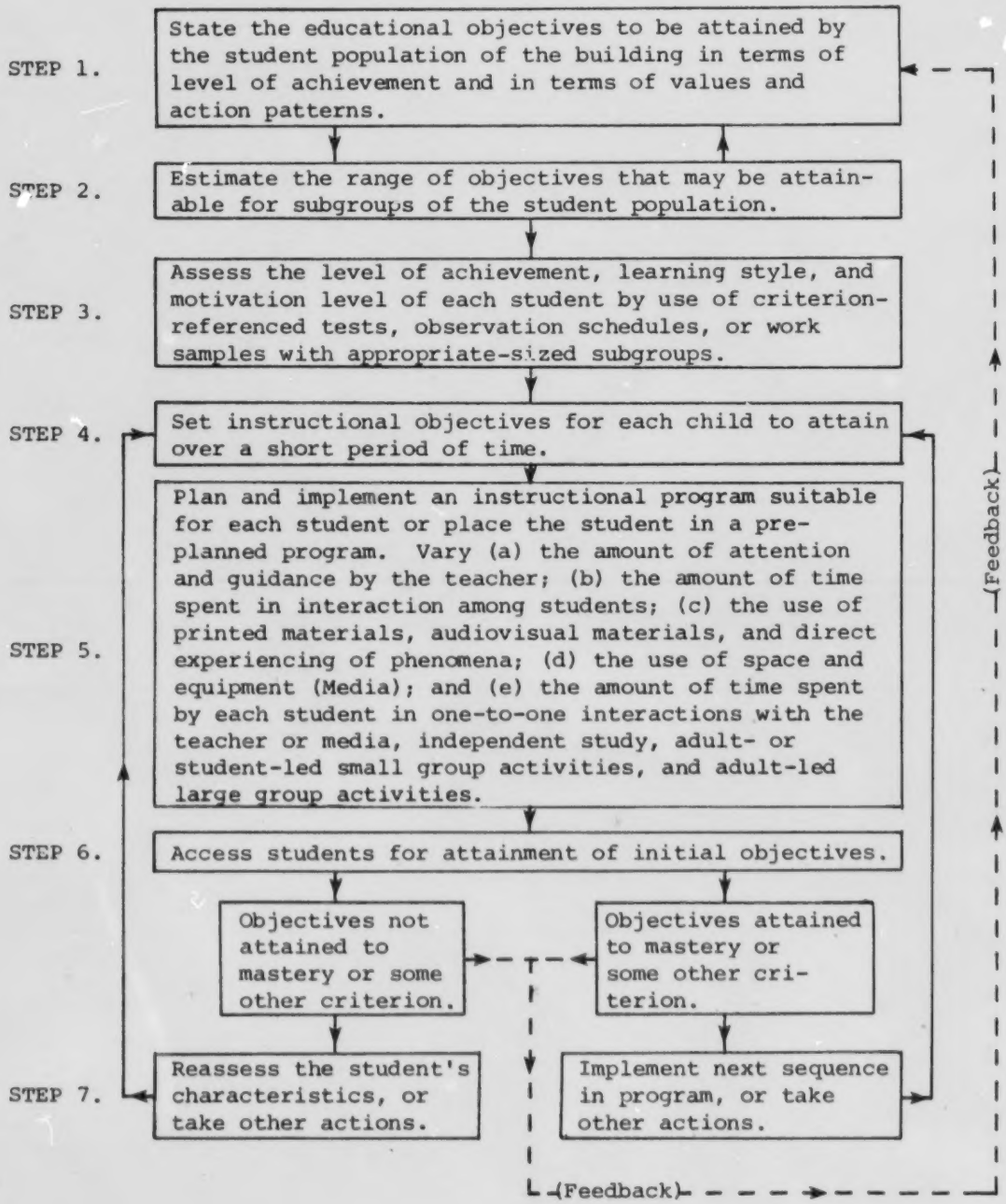
STEP 1.
State the educational objectives to be attained by the student population of the building in terms of level of achievement and in terms of values and action patterns.
STEP 2.
Estimate the range of objectives that may be attainable for subgroups of the student population.
STEP 3.
Assess the level of achievement, learning style, and motivation level of each student by use of criterion-referenced tests, observation schedules, or work samples with appropriate-sized subgroups.
STEP 4.
Set instructional objectives for each child to attain over a short period of time.
STEP 5.
Plan and implement an instructional program suitable for each student or place the student in a pre-planned program. Vary (a) the amount of attention and guidance by the teacher; (b) the amount of time spent in interaction among students; (c) the use of printed materials, audiovisual materials, and direct experiencing of phenomena; (d) the use of space and equipment (Media); and (e) the amount of time spent by each student in one-to-one interactions with the teacher or media, independent study, adult- or student-led small group activities, and adult-led large group activities.
STEP 6.
Access students for attainment of initial objectives.
Objectives not attained to mastery or some other criterion.
Objectives attained to mastery or some other criterion.
STEP 7.
Reassess the student's characteristics, or take other actions.
Implement next sequence in program, or take other actions.
(Feedback)
(Feedback)

Figure 1. Instructional Programming Model in IGE.

Source: Klausmeier et al., 1977; adapted from Klausmeier et al., 1971.

which indicate that every student should attain some level of mastery of certain critical objectives before leaving school. Other objectives, however, are not stated as explicitly nor are they linked to a level of mastery common to all students. Rather, the criterion level for these objectives, especially prevalent in the creative arts, humanities, social education, and the affective domain, have sole reference to individual students. Both types of instructional objectives are keyed in a reasonable way to a set of schoolwide objectives which has been devised and agreed upon by the instructional leaders of the school.

Continuous progress is an instructional arrangement in which instructional programs are determined by the learner's needs and accomplishments. Student progress is not based upon arbitrary sequencing stemming from such factors as the student's chronological age or years in school. Preassessment, on the other hand, is a procedure used in IGE schools to determine the instructional needs of each student. This procedure is also a departure from conventional practice; its goal is to establish particular instructional objectives for each student and to aid in developing appropriate instructional activities to enhance the achievement of these objectives.

The basic dynamics being created are completed by criterion-referenced testing. When appropriate to a particular objective, a test measures the attainment of explicitly stated behaviors. Thus, success, or mastery, is achieved when an individual meets a

specific criterion level as opposed to being based upon some type of standardized norm derived from a reference group. The results of the criterion-referenced testing signal a decision point: Either the next sequence in the instructional program is implemented or the student is reassessed and his or her program modified accordingly.

In sum, however, it is well to note the dictum put forth by Klausmeier et al. (1977, p. 15):

> Instructional programming for the individual student should not be interpreted to mean that all students engage in the same number or kinds of activities, or reach an identical level of achievement, interest, or motivation. It does imply that objective-based instruction may proceed differently for different kinds of objectives within the same curricular area and also across various curricular areas.

Compatible Curricular Materials

As noted by Klausmeier et al. (1977), curricular materials for any instructional system, IGE included, should possess four main attributes: (a) the content incorporated in the material should be accurate and reliable; (b) the content should be learnable by the particular students for whom it is prepared; (c) the materials and related activities should be teachable; and (d) the materials should be suitable in terms of cost, attractiveness, and the amount of inservice teacher education required. However,

> (T)o be compatible with instructional programming for the individual student, each set of materials in any curricular area should include (1) clearly stated instructional objectives; (2) assessment tools and procedures directly related to each objective that will aid teachers in the initial, formative, and summative evaluations of student learning; (3) printed and non-printed instructional materials that will enable students to attain each objective; and (4) suggestions to teachers concerning possible instructional activities that effectively combine the use of the materials with student and teacher activities (Klausmeier et al., 1977, p. 17).

That is, for curricular materials to be compatible with the IGE innovation, they must be compatible with the IPM. On the other hand, curricular materials do not have to be specifically written for IGE to be compatible with the IGE innovation.

Over the years, the Wisconsin R & D Center has developed a number of curricular packages that are in line with the above-stated criteria, foremost being the Wisconsin Design for Reading Skill Development (the Design or WDRSD) and Developing Mathematical Processes (DMP). Further descriptions of these products serve to clarify the nature of curricular materials that are seen as compatible with the IGE innovation. Moreover, these two packages bear future importance on the Studies of Implementation.

The Wisconsin Design for Reading Skill Development. This curricular package is an objective-based system that provides both structure and substance for an elementary school reading program--kindergarten through grade six. The system focuses upon developing the essential subskills of reading, which when once acquired and applied, enable students to read successfully.

The Design consists of four main components--skills and objectives, assessment materials, instructional resources, and management materials which help teachers to organize and focus their teaching of reading skills. Each skill in the Design is described by a specific objective. The objectives serve as the basis for the assessment of student progress and skill development. Materials and procedures for keeping records and for implementing the system are also part of the Design.

The skills, considered by the Design as essential for success in reading, were selected on the basis of input from teachers, research results, and common sense analysis of the reading tasks of elementary school students. The skills are grouped into six areas: Word Attack, Study Skills, Comprehension, Self-directed Reading, Interpretive Reading, and Creative Reading. Instructional objectives are provided for each of the skill areas. However, only the areas of Word Attack, Study Skills, and Comprehension contain prescriptive objectives, or objectives that state expectations in behavioral terms. Descriptive objectives are provided for the remaining areas. Furthermore, each skill area is subdivided into

levels that correspond roughly to grades K-6 and are concluded by a terminal objective which projects the outcome to be expected once all of the instructional objectives within the area have been mastered.

Criterion-referenced assessment materials are provided for all of the behavioral objectives of the Design (that is, within the areas of Word Attack, Study Skills, and Comprehension). These materials are of two types. Formal assessment is completed through paper-and-pencil tests, called the Wisconsin Tests of Reading Skill Development. The Guides to Informal Individual Skills Observation contain informal, though criterion-referenced, assessment exercises keyed to certain skills. Assessment in the Self-directed, Interpretive, and Creative Writing skill areas is not criterion-referenced, which is in keeping with the nature of these areas. Instead, teachers are urged to continually monitor the progress of individual students through direct observation.

Since sufficient materials for teaching most of the Design skills are readily available, teachers' resource files, which organize existing materials and activities, were developed only for those skill areas keyed to behavioral objectives. Within each of these files, materials and activities appropriate for teaching/learning the prescribed criterion behaviors are identified and organized by objective. The files include only a limited sample or "starter set" of appropriate resources.

Three components of the Design are directed specifically to providing assistance with its management and implementation. The Rationale and Guidelines covers all six areas and provides a rationale for the Design's development and guidelines for its implementation. Separate teachers' planning guides are available for Word Attack, Study Skills, and Comprehension, and a single, combined guide is provided for Self-directed, Interpretive, and Creative Reading. The planning guides include the specific information needed for the implementation of an objective-based approach to each Design area. Student profile cards are provided to record the individual's skill development by tabulating which objectives the individual has or has not attained. Taken together, the Rationale and Guidelines and the teachers' planning guides provide the practical assistance that enable a school staff to plan and carry out the assessment, grouping, scheduling, and record keeping required for successful implementation.

Developing Mathematical Processes (DMP). This curricular package is a complete program of mathematics instruction for use in kindergarten through grade six. Developing Mathematical Processes has six objectives:

1. To provide an activity-oriented, manipulative-based instructional program that is an innovative alternative to the traditional paper-and-pencil workbook and textbook programs.

2. To develop a sound conceptual base upon which children can build proficiency in and an understanding of arithmetic, geometry, and problem-solving skills.

3. To provide opportunity for developing and practicing basic arithmetic skills with whole numbers, fractions, and decimals.

4. To provide children with ample learning activities to enable them to become proficient as independent, willing, and creative problem solvers.

5. To assist teachers in meeting the needs of individual students by providing a variety of learning activities, suggestions for different grouping patterns, assessment and record-keeping materials, and an adequate supply of interesting and motivating nonprint materials.

6. To use all of the above to help create a more positive atmosphere so that teaching and learning mathematics is a pleasurable experience.

Three basic features describe the program. Pedagogically, DMP is a child-oriented program in which children actively investigate and study mathematical aspects of their environment. It is an ungraded, continuous progress program, built upon sets of learning objectives. Physical manipulatives, stories, games, and paper-and-pencil activities are provided for student use. Teacher materials include guides for program use, assessment and evaluation tools and procedures, and record-keeping devices.

Psychologically, DMP is an activity program in which children learn to represent their world with mathematical symbolism after they learn concepts, relationships, operations, and processes in con-

crete situations. Student motivation receives primary attention through the use of a variety of instructional activities, multiple classroom organizational and grouping patterns, and a problem-solving approach to learning.

Mathematically, DMP approaches its subject through measurement rather than set theory. Using various processes (e.g., describing, classifying, ordering, joining, grouping, and partitioning), children examine objects, sets, and events in their world, such as length, height, weight, area, numerousness, time, duration, and capacity. These processes are also used to explore the attributes and their relationships and the operations between them. Ultimately, children represent symbolically the attributes by measuring, and represent the relationships and operations by writing mathematical sentences. In addition to the arithmetic of the rational numbers, geometry and elementary statistics are a part of the DMP program.

The Multiunit Organizational Administrative Arrangements

The multiunit structure is the major organizational component of the IGE innovation and calls for significant change from the traditional way of organizing and administrating elementary schools. The structural configuration of an IGE multiunit school consists of three distinct organizational groups, each of which has its own decision parameters (see Figure 2).

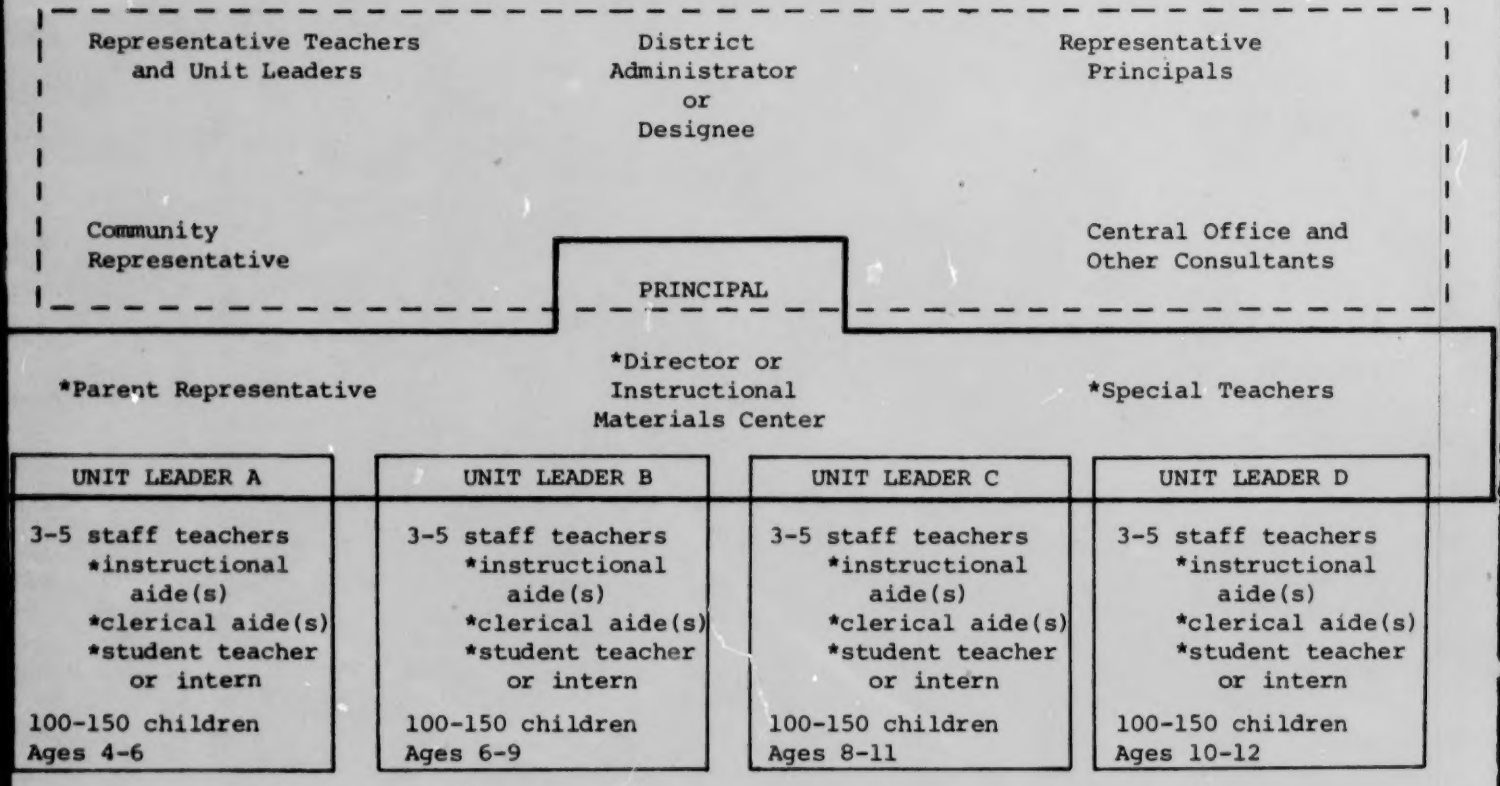

Figure 2. Prototype multiunit organization of an IGE school of 400-600 students.

Source: Klausmeier et al., 1977, p. 12; adapted from Klausmeier et al., 1968.

At the district level, the Systemwide Program Committee (SPC) establishes guidelines within which each of the district IGE schools must operate. The SPC is composed of the school district superintendent, central office personnel, principals, unit leaders, teachers, and parents or citizens. More specifically, the SPC takes primary initiative for:

1. identifying the functions to be performed in each IGE school of the district;

2. providing for the recruitment of personnel for each IGE school and for their inservice education;

3. providing the essential physical resources and instructional materials;

4. planning an effective program of home-school-community relations for the district; and

5. providing for the transition of students from the IGE elementary school to middle school or junior high school. (Klausmeier et al., 1977, p. 14.)

At the building level, the Instructional Improvement Committee (IIC) concentrates its efforts on schoolwide instructional concerns. The four main functions for which the IIC takes primary initiative are:

1. formulating the general educational objectives for the entire school building;

2. interpreting and implementing systemwide and statewide policies that affect the educational program of the building;

3. coordinating the activities of the Instruction and Research Units to achieve continuity in all curricular areas; and

4. arranging for the use of the time, facilities, and resources that are not managed independently by the units. (Klausmeier et al., 1977, p. 13.)

At the classroom level, each Instruction and Research (I & R) Unit is concerned with planning, implementing, and evaluating the instructional program for each child under its auspices. The I & R Unit, which is nongraded, is IGE's alternative to the traditional patterns of organizing for instruction; that is, either the age-graded, self-contained classroom or the departmental form. The I & R Unit in the multiunit IGE school usually encompasses a 3- or 4-year age differential. Multiaging results in students remaining within a particular I & R Unit for 2 or 3 years.

At the head of each I & R Unit is the unit leader, the only new position created by the IGE organization structure. The responsibilities of the unit leader[2] are captured in three broad areas: membership in the IIC, leadership of the I & R Unit, and teaching (Klausmeier et al., 1977, p. 35). Completing the I & R Unit are three to five staff teachers, a clerical or instructional aide, a teaching intern, and 100 to 150 students. The I & R Unit works as

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[2]For a fuller account see Sorenson, Poole, and Joyal, The Unit Leader and Individually Guided Education, Reading, Massachusetts: Addison-Wesley, 1976.

a team to perform the unique functions of : (a) devising, conducting, and evaluating an instructional program appropriate for each student in the unit; (b) managing the use of time, space, equipment, and curricular materials and resources of the unit; (c) reporting to parents and utilizing community resources in providing instructional activities; (d) engaging in on-the-job inservice training and staff development activities; (e) providing clinical experiences for interns and student teachers; and (f) conducting research and development activities which enhance the learning of each child (Klausmeier et al., 1977, p. 27).

In sum, then, the multiunit organizational design is characterized by the multiage grouping of students, nongradedness, differentiated staffing, shared decision making, and teaming. It is promoted by IGE to foster the individualization of instruction and to allow for the incorporation of IGE components.

Evaluation for Educational Decision Making

The most frequent and critical use of evaluation processes in Individually Guided Education is in the area of instructional decision making. Within the instruction process, evaluation occurs at three key points: at the beginning of a unit of instruction, during critical points of actual instruction, and at the conclusion of a unit of instruction. IGE's model for evaluating student learning has five steps: (a) formulate instructional objectives and set related criteria of attainment ⟶ (b) measure ⟶

(c) relate measurement to criteria ⟶ (d) judge ⟶ (e) act on judgment (Klausmeier & Goodwin, 1975).

Evaluation in IGE settings also includes assisting decisions related to staff personnel, curriculum development, resource management, and home-school-community relations.

Home-school-community Relations

Full knowledge and appreciation of the student's home and community is a prerequisite to successful implementation of an IGE instructional program. Moreover, these understandings must be mutual and include comprehension of each party's resources and expectations if an optimal learning situation is to be provided for students (Fruth, Bowles, & Moser, 1977). Therefore, the home-school-community relations component of the IGE innovation focuses on three goals:

1. To make the IGE staff responsive to the educational expectations and available resources of the community, parents, and students.

2. To make the community, parents, and students responsive to the requisites of the instructional program as it is implemented in IGE.

3. To identify and utilize means of actively involving both staff and community in the awareness, commitment, changeover, refinement, and renewal phases of implementing IGE in the school. (Lipham & Fruth, 1976, p. 259.)

Facilitative Environments

Facilitative environments are supports to the system of Individually Guided Education, established through the school's internal organization and its external environment. Within the school, the primary facilitative environment is established through the multiunit organization. Outside the school, the state network provides an organized support system.

The state network is a three-tiered arrangement of interrelationships between Systemwide Program Committees, state education agencies, teacher education institutions, and regional IGE centers (see Figure 3). Support at the local level is provided in the first tier of the state network. By the creation of a Systemwide Program Committee, a group may compose representatives from each of the Individually Guided Education schools within the school system. The Regional IGE Coordinating Council is the second tier in the state network support system. Regional IGE Coordinating Councils are established to represent geographical regions within a given state. They include representatives from each of the Systemwide Program Committees, teacher education institutions, intermediate education agencies, and the state educational agency. The third tier of the state network provides for statewide support. It is composed of the state IGE coordinator, representatives from the Regional IGE Coordinating Councils, and key personnel from the state education agency.

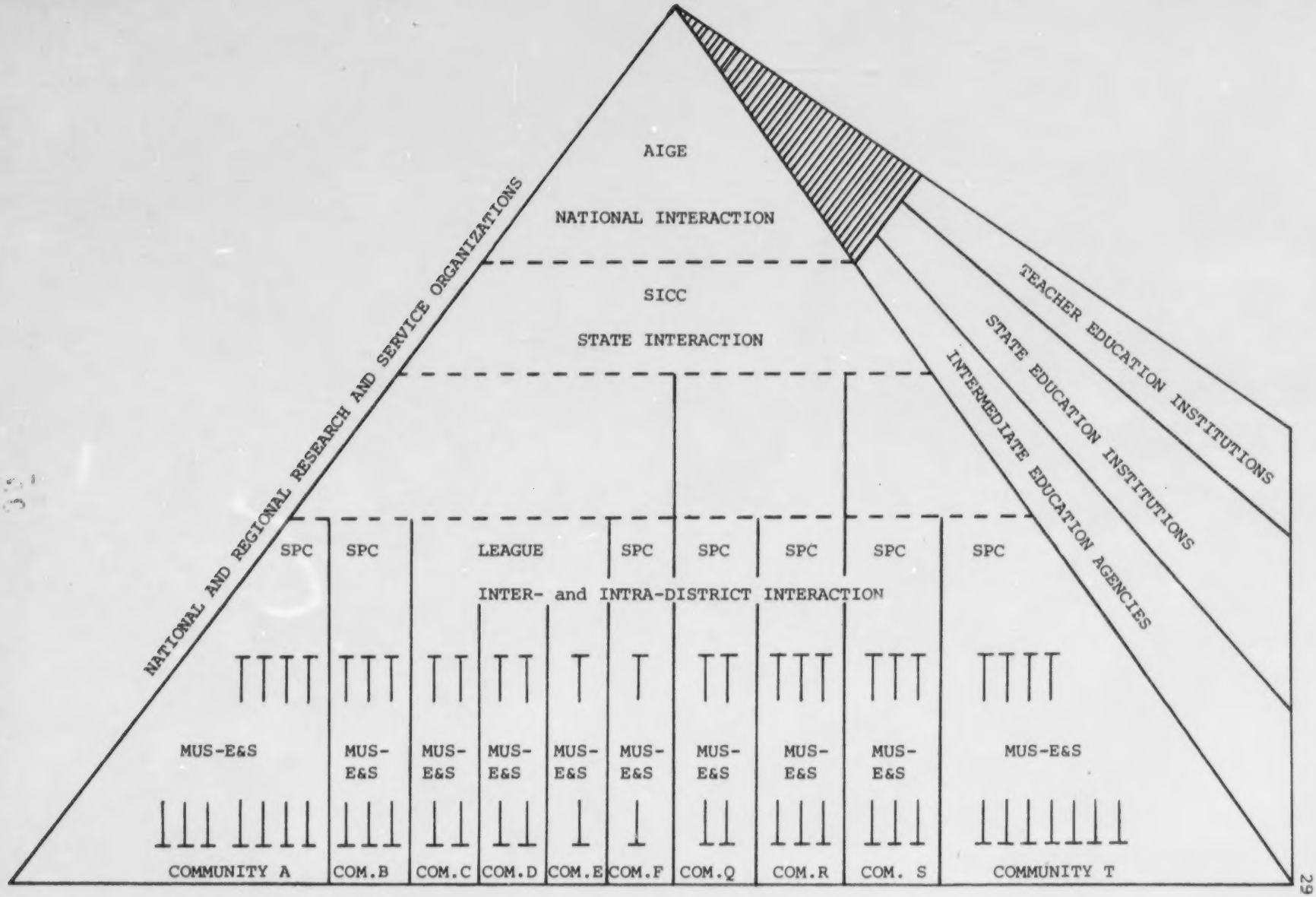


Figure 3. IGE facilitative environment interaction patterns.

Source: Heffernan, Mancusi, and Klenke, 1976.

A facilitative environment has evolved at the national level as well. The Association for Individually Guided Education (AIGE) is a voluntary, open-membership organization designed to promote the continued implementation and refinement of IGE. In addition, four regional IGE centers provide services to schools as well as to the state networks. And, finally, the Wisconsin R & D Center provides support to IGE schools by continued research and dissemination efforts related to individualized schooling.

Continuing Research and Development

Research and development at the local school and college level have contributed significantly to the continued refinement of practices that are improving Individually Guided Education. One general area of research focuses upon the teaching and learning process with special reference to the development of curricular materials suitable for individual instructional programming. The second general area of research and development focuses upon the mechanisms that support the teaching and learning process. Research and development activities associated with the multiunit school and home-school-community relations are examples of this second general area.

Measuring the Degree of Implementation of the Instructional Programming Model (IPM)

In brief recapitulation, the Studies of Implementation is projected to be a 3- to 5-year longitudinal investigation of the process

by which an innovation, once implemented, becomes the pattern of schooling. The study aims to identify those factors that promote or retard change and to relate them in a fairly precise way to the modifications they foster. In the larger context, the study will focus on the attempt to completely individualize instruction in elementary schools. More specifically, this will be accomplished through the observation of several schools proclaimed to be IGE schools, and therefore committed to the implementation of the Instructional Programming Model, the key component of IGE. As such, the prime criterion of the Studies of Implementation is how instruction is designed and delivered to children. According to the developers' specifications, the IPM is built around a set of objectives and proceeds by using criterion-referenced pre- and post-assessments to plan and implement an instructional program suitable for each student.

In one sense, then, the implementation of the IPM in a school or, more accurately, in an I & R Unit, may be easily measured by observing relevant behaviors and checking off the application or nonapplication of each of the IPM's features. By invoking some arbitrary but logical decision rules, one might then declare each site to be either a user or a nonuser of the IPM as envisioned by the innovation's developers. However, this dichotomizing procedure conflicts with the current direction for studying planned

change as promulgated in the change literature, and, to some extent, it violates the deep set beliefs underlying the conceptualization of the innovation as well.

As pointed out by Fullan and Pomfret (1977), there are two general orientations for studying the process of implementing an innovation. The procedure outlined above is in line with what these authors have labeled the fidelity orientation. The main intent of the fidelity orientation is to determine the degree of implementation of an innovation in terms of the extent to which the actual use of an innovation corresponds to its intended or planned use. The fidelity orientation predominates in the change literature despite the fairly well accepted view that few innovations are incorporated as precisely as designed. The second orientation for studying implementation, on the other hand, accepts this view as reality and is directed toward analyzing the complexities of the change process vis-à-vis how innovations are developed and adapted during the process of incorporation. Fullan and Pomfret (1977) follow the lead of the Rand studies by Berman and Pauly (1975) in calling this orientation the "mutual adaptation" perspective.

Clearly, the orientations differ substantially in terms of the understandings they reveal. While the fidelity perspective might reveal information of the utmost importance to the innovation's developers, it is the mutual adaptation perspective that seems most able to contribute profitably towards building a theory of planned change. Beyond the patent fact that the fidelity perspec-

tive is and must remain innovative, it does not recognize the emergent conceptualization of planned change as being a multiphasic process. Hall, Loucks, Rutherford, and Newlove (1975), for example, hypothesize that the process of incorporating an innovation passes sequentially through eight "Levels of Use," three of which, in fact, occur before any visible signs of the innovation can be observed in the daily practices of the adopting organization (see Figure 4). More important, it would seem quite probable that the factors affecting change and their interrelationships vary differentially by the innovation's level of use. The testing, clarification, and extension of these hypotheses would seem to be the basis of developing a theory of planned change. However, they are substantially denied consideration under the fidelity orientation.

And, finally, singular reliance on the fidelity perspective does not fit snugly into the notion of examining the particular innovation, the Instructional Programming Model of IGE. On the one hand, the developers of the IPM designed it to be somewhat site specific. By design, the users of the innovation were to be allowed, even encouraged, to modify the procedures of the IPM within rather wide bounds to optimally function in their unique setting. On the other hand, even full compliance with each of the essential ingredients of the IPM (e.g., maintaining a set of instructional objectives,

Levels of Use are distinct states that represent observably different types of behavior and patterns of innovation use as exhibited by individuals and groups. These levels characterize a user's development in acquiring new skills and varying use of the innovation. Each level encompasses a range of behaviors, but is limited by a set of identifiable Decision Points. For descriptive purposes, each level is defined by seven categories.

LEVEL 0 NON-USE: State in which the user has little or no knowledge of the innovation, no involvement with the innovation, and is doing nothing toward becoming involved.
DECISION POINT A
LEVEL I ORIENTATION: State in which the user has acquired or is acquiring information about the innovation and/or has explored or is exploring its value orientation and its demands upon user and user system.
DECISION POINT B
LEVEL II PREPARATION: State in which the user is preparing for first use of the innovation.
DECISION POINT C
LEVEL III MECHANICAL USE: State in which the user focuses most effort on the short-term, day-to-day use of the innovation with little time for reflection. Changes in use are made more to meet user needs than client needs. The user is primarily engaged in a stepwise attempt to master the tasks required to use the innovation, often resulting in disjointed and superficial use.
DECISION POINT D-1
LEVEL IV-A ROUTINE: Use of the innovation is stabilized. Few if any changes are being made in ongoing use. Little preparation or thought is being given to improving innovation use or its consequences.
DECISION POINT D-2
LEVEL IV-B REFINEMENT: State in which the user varies the use of the innovation to increase the impact on clients within immediate sphere of influence. Variations are based on knowledge of both short- and long-term consequences for clients.
DECISION POINT E
LEVEL V INTEGRATION: State in which the user is combining own efforts to use the innovation with related activities of colleagues to achieve a collective impact on clients within their common sphere of influence.
DECISION POINT F
LEVEL VI RENEWAL: State in which the user reevaluates the quality of use of the innovation, seeks major modifications of, or alternatives to, present innovation to achieve increased impact on clients, examines new developments in the field, and explores new goals for self and the system.

Figure 4. Hall, Loucks, Rutherford, and Newlove, 1975. Levels of use: Scale point definitions of the levels of use of the innovation.

Source: Procedures for Adopting Educational Innovations Project, Research and Development Center for Teacher Education, University of Texas at Austin, 1975, NIE Contract #NIE-C-74-0087.

pre- and post-testing), does not accurately describe the very significant differences with which these ingredients may be applied. All of these ingredients, however, would come under the fidelity perspective's rubric of "use of the innovation." For example, one I & R Unit might offer a host of alternative learning activities for a particular instructional objective; a second "user" might provide for only two. Could it be said that such differences should be ignored from explanation or preemptorily demarcated in some arbitrary fashion?

Because of these differences, the more easily measured fidelity orientation was abandoned as the primary methodological focus of the Studies of Implementation in favor of the mutual adaptation perspective. How then can the degree of implementation of the IPM be measured? Three basic dimensions of measurement suggest themselves.

First, an essentially descriptive dimension is needed to capture the "complexity of use" of the innovation at a particular time. This dimension, which would be bound on one end by "nonuse" when assessed at periodic intervals would provide a chronological representation of how the innovation has been adapted in use. The observation of abrupt or incremental modifications would spur the investigation of why these modifications were enacted and provide a basis for correlating their appearance with the occurrence of other events, assuming these also were monitored chronologically. Of course, the "complexity of use" dimension can be readily translated into a measurement of the fidelity of implementation.

As for the particular innovation, the IPM, a second dimension of measurement, called the "scope of use," is necessary to fully describe the adopting agent's degree of implementation. While one form of adapting the IPM would be to increase (or decrease) its complexity, another conceptually distinct form would be to bring its use to new curricular or programmatic areas. That is, another key point of measurement for recognizing adapted use is the diffusion of constriction of the IPM throughout the I & R Unit's instructional program.

Cutting across these two dimensions, a type of measurement is needed to convey the ease with which the users put into practice their form of the innovation. As first questioned by Hall, Loucks, Rutherford, and Newlove (1975), what are the current concerns of the users for the innovation? Are they struggling along, merely trying to hold their heads above water? Have they slipped into a comfortable pattern of routine use and given no thought to improving the practice of the innovation? Or are they reaching out to others with the intent of coordinating and diffusing the innovation? Hall and Loucks seem to have captured the essence of this dynamic type of measurement in their already mentioned Levels of Use inventory (see Figure 4). As such, the Levels of Use are adopted as the third major dimension for measuring the degree of implementation of the IPM. However, it should be noted that the Levels of Use can and will be used in two interrelated ways.

On the one hand, if the Levels of Use are tabulated with respect to the criteria promulgated by the developers of the innovation, one is provided with a fidelity perspective on the degree of implementation of the IPM. On the other hand, one may structure the Levels of Use against the benchmark offered by the earliest description (i.e., complexity and scope of use) of the innovation in practice, and thereby attain a mutual adaptation perspective.

In sum, the criterion variable of the Studies of Implementation, the degree of implementation of the IPM, will be periodically measured along three dimensions: (a) the complexity of use, (b) the scope of use, and (c) the Levels of Use. An initial draft of a structured interview to tap these three dimensions has been assembled and appears in Appendix A. This interview contains the essential questions needing answers to estimate an innovation's Level of Use as espoused by Hall et al. (1975). In addition to providing descriptive information regarding the defining elements of the IPM, the interview addresses the dimension of complexity of use with regard to the elaboration of patterns for grouping students for instruction. Under the notion that grouping patterns are a primary expression of the application of the IPM, the interview queries the respondent about the number of student groups, the number and kind of criteria actually used to group students, and the frequency with which regrouping occurs. Finally, an assessment of the scope of use of the IPM will be made along two lines; 1) its time-in-use and 2) the percentage of curricular areas functioning through the IPM.

CHAPTER III

THE HISTORICAL CONTEXT OF THE IGE INNOVATION

This chapter provides a context for viewing the innovation of concern to the Studies of Implementation by recording a brief history of the development and diffusion of Individually Guided Education. Foreshadowing a major conclusion of a later chapter, namely that the Studies of Implementation will be lodged predominantly in Wisconsin elementary schools, Chapter III is presented in two parts. The first part deals with the general history of IGE and its diffusion at the national level. The second part directs attention to the development of IGE within the state of Wisconsin. Each part is summarized by the presentation of key events.

The History and Nationwide Diffusion of Individually Guided Education

According to Klausmeier et al. (1977), the embryo of IGE began in 1964 at the Wisconsin Research and Development Center for Individualized Schooling with Project MODELS, "Maximizing Opportunities for Development and Experimentation in Learning in the Schools" (see Klausmeier, Goodwin, Prasch, & Goodson, 1966). In

this project, conditions inhibiting instructional improvement efforts were identified and remedies suggested. As a result, in 1965-1966, 13 nongraded Instruction and Research Units were incorporated in elementary schools of four Wisconsin school districts: Madison, Janesville, Milwaukee, and Racine (see Klausmeier, Cook, Goodwin, Tagatz, & Pingel, 1967). These units, which replaced age-graded classes, were scattered throughout the districts and no attempt was made to organize an entire school into a unitized structure. Only 2 years later, the number of teaching units had grown to 19.

Given the apparent success of these self-standing I & R Units, the move to a completely unitized school seemed to be in order. Consequently, seven Wisconsin elementary schools were completely organized into units during the 1967-1968 school year. The term Multiunit Elementary School was coined by the developers to designate this form of school structure (Klausmeier et al., 1968). At the same time, the Systemwide Policy Committee (SPC) and the Instructional Improvement Committee (IIC) were incorporated. "The term Instructional Improvement Committee was selected to encourage the members of this committee to focus on the improvement of instruction rather than on other matters and to elicit the support of parents and other community members" (Klausmeier et al., 1977, p. 4). Later, in 1974, the Systemwide Policy Committee was renamed the Systemwide Program Committee in recognition of the legal fact that only the lay school board could frame school policy.

In 1968, the Wisconsin Department of Public Instruction selected the Multiunit Elementary School for statewide dissemination and implementation. Also, at this time, the concepts underlying the multiunit structure were more fully articulated and were referred to by the more inclusive term, Individually Guided Education. Working with local school and state personnel, the Wisconsin R & D Center produced a series of training materials to assist in this implementation effort. Hence, the number of Multiunit Elementary Schools in the state of Wisconsin increased rapidly from the original 7 in 1968 to 99 in 1971. The growth of the unitized structure was not, however, limited to Wisconsin. By the end of the 1969-1970 school year, 50 Multiunit Elementary Schools, many of them in Ohio, were in existence.

During the next year, an event which caused future confounding effects, transpired. The Wisconsin R & D Center and the Institute for Development of Educational Activities (/I/D/E/A/) of the Kettering Foundation reached an agreement whereby /I/D/E/A/ was to update and enlarge upon the R & D Center's training materials package. Upon completion of the adaptation in 1971, /I/D/E/A/ used the materials, called the "IGE Change Program," to train facilitators to start IGE schools.

Early in 1971, the United States Office of Education selected the multiunit component of IGE for nationwide dissemination and implementation. Other federal funding was forthcoming in the next two years to spur this effort on and to include several other

IGE components. The National Institute of Education began funding IGE efforts and has continued to do so until this day.

To establish a framework for dissemination and implementation activities, the Wisconsin R & D Center established formal working relationships with nine state departments of education; Colorado, Connecticut, Illinois, Indiana, Minnesota, New Jersey, Ohio, South Carolina, and Wisconsin. It also established informal relationships with four others; California, Nebraska, New York, and Virginia. Each of the nine formally contracted educational agencies was required to implement IGE in a fixed number of schools and to designate an individual as its state IGE coordinator. Reciprocally, each state received a grant of approximately $30,000 from the R & D Center and was provided with technical and material support.

Procedurally, the Wisconsin R & D Center utilized a four-phase implementation strategy: awareness, first-year changeover, second-year maintenance and refinement, and institutionalization (Klausmeier, 1971). The first phase was initiated in 1971, by offering 1-day awareness sessions to generate enthusiasm and commitment to the implementation of IGE. These sessions were conducted by R & D Center personnel and were offered to those prospective IGE schools that were identified by each of 13 newly designated state IGE coordinators.

The purpose of phase two was to fully train key personnel at each of the participating IGE schools. With assistance from the

R & D Center, the state IGE coordinators worked with principals and unit leaders about how to implement IGE. These leaders were then expected to share their acquired IGE training with their staff.

During phase three, new developments in the evolving IGE innovation were presented to practitioners. Approximately 700 unit leaders, 300 building administrators, and 100 reading teachers participated in 1-week institutes. While sanctioned by the R & D Center, the institutes were conducted by seven institutions of teacher education in the states of Connecticut, Ohio, and Wisconsin.

Phase four, "Institutionalization," was never initiated due to the withdrawal of federal funding for nationwide implementation.

During the 1971-1975 diffusion efforts, a major crisis between the R & D Center and /I/D/E/A/ arose over the use of training materials. Early on, both agencies made extensive use of the printed materials developed by /I/D/E/A/ on the basis of the work done by the R & D Center. In 1972, /I/D/E/A/ required that schools must attend one of their inservice clinics to use the "IGE Change Program" materials. This move was incompatible with the now federally funded implementation activities of the Wisconsin R & D Center. As a result, the R & D Center lost access to the available IGE training materials.

This period of intensive implementation from 1971-1975 also saw the growth of a network of IGE schools. To further the implementation of IGE, cooperating state department of education officials, teacher educators, practitioners, and other interested

educators began to solidify their existing collaborative relationships. This movement became somewhat more formalized by the simultaneous formation of leagues of geographically proximate IGE schools in nine states. The leagues created a mutual support system and provided a vehicle for state IGE coordinators and teacher educators to bring their areas of expertise to the IGE schools.

In fact, the R & D Center's concern about training materials and the blossoming movement toward networking were both crystallized when the University of Wisconsin/Sears Roebuck Foundation Teacher Education Project was initiated in 1972. More specifically, the two-fold purpose of this project was to: (a) develop a set of second-generation IGE training materials appropriate for teacher educators, local school personnel, and IGE implementors; and (b) establish formalized state networks of IGE schools. Materials were developed for use in training IGE teachers, unit leaders, and administrators at both the graduate and undergraduate levels. The materials were also developed to be appropriate for use in inservice programs. As for the networking concerns of the project, formal linkage systems were established in 14 states: California, Colorado, Connecticut, Illinois, Indiana, Massachusetts, Minnesota, New Jersey, Ohio, Rhode Island, South Carolina, South Dakota, Texas, and Wisconsin. Without financial assistance from the Sears-Roebuck Foundation, the Wisconsin R & D Center helped to form 11 additional state networks for IGE schools. These were located in Florida,

Georgia, Iowa, Kentucky, Michigan, Missouri, New Hampshire, New York, Pennsylvania, Utah, and Virginia. The structures typically established included the state department of education, teacher education institutions, local schools and school districts, and, where appropriate, intermediate educational agencies. As of 1976, 24 state networks were functioning to serve over 3,000 IGE schools.

Perhaps the most important aspect of the networking movement was the creation, in 1973, of a national organization called the Association for Individually Guided Education (AIGE). Sparked by the efforts of 12 state IGE coordinators, AIGE holds an annual convention and publishes an IGE journal. The first convention of AIGE, held in 1973 in Madison, Wisconsin, attracted more than 400 educators, a number to be greatly exceeded in future years.

As for the present status of Individually Guided Education at the elementary level, the rate of adoption has slowed since the time of federally funded implementation activities. However, a large cadre of schools organized within state networks continue to thrive. AIGE remains an active and viable institution; research on IGE concepts commands great interest at the Wisconsin R & D Center and elsewhere throughout academia.

A Timeline for the Development and Diffusion of IGE

1964 ·Wisconsin Research and Development Center for Cognitive Learning established with federal funds.

1964-1965 •The genesis of IGE begins in Project MODELS (Maximizing Opportunities for Development and Experimentation of Learning in the Schools).

1965-1966 •Thirteen nongraded Instruction and Research Units are created in four Wisconsin School Districts: Madison, Janesville, Milwaukee, and Racine.

1966-1967 •The number of Instruction and Research Units in Wisconsin schools increases to 19.

1967-1968 •The first seven elementary schools are completely organized into Instruction and Research Units.

•Two additional organizational arrangements are created: the Instructional Improvement Committee (IIC) at the school level, and the Systemwide Policy Committee (SPC) at the school district level.

•The term "Multiunit Elementary School" is coined.

1968-1969 •The Wisconsin Department of Public Instruction selects the Multiunit Elementary School for statewide demonstration and implementation.

•Four teacher education institutions in four regions of the state and the Wisconsin Department of Public Instruction, with assistance from the R & D Center, establish a "lighthouse" project and begin two lighthouse schools (demonstration schools) per site.

•Personnel from the R & D Center, Wisconsin Department of Public Instruction, and local schools develop the

first set of IGE training materials; 1 book and 15 videotapes.

1969-1970 •Wisconsin IGE schools in 23 of its school districts.

1969-1972 •The R & D Center and the Institute for the Development of Educational Ideas (/I/D/E/A/) sign an agreement authorizing /I/D/E/A/ to develop a more complete set of inservice materials. Both the R & D Center and /I/D/E/A/ make extensive use of the materials.

1970-1971 •/I/D/E/A/ establishes its own "Change Program" for IGE.

•IGE is in 164 schools in 8 states, 99 of these schools being in Wisconsin.

1971 •The United States Office of Education selects the Multiunit Elementary School for nationwide implementation.

•The R & D Center receives federal funds to conduct a nationwide IGE implementation effort.

•The R & D Center formulates a four-phase implementation model: Phase I, awareness; Phase II, first-year implementation; Phase III, second-year maintenance and refinement; and Phase IV, institutionalization.

1971-1973 •Agreements between the R & D Center and nine state education agencies are signed to establish formal relationships supporting the nationwide IGE implementation effort:

Colorado, Connecticut, Illinois, Indiana, Minnesota, New Jersey, Ohio, South Carolina, and Wisconsin. Limited implementation efforts are also conducted in California, Nebraska, New York, and Virginia.

- Over 1,000 IGE schools are started through the efforts of the R & D Center and /I/D/E/A/.
- Approximately 700 unit leaders, 300 building administrators, and 100 teachers of reading attend 1-week institutes for experienced IGE personnel. The institutes are sanctioned by the R & D Center and conducted by seven teacher education institutions in three states: Connecticut, Ohio, and Wisconsin.

1972

- The requirements set by /I/D/E/A/ for use of its training materials become incompatible with federally funded implementation activities of the R & D Center. The R & D Center develops a new set of training materials.

1972-1976

- A grant from the Sears-Roebuck Foundation creates the University of Wisconsin/Sears-Roebuck Foundation Teacher Education Project to (a) develop a set of second-generation IGE training materials appropriate to teacher educators, local school personnel, and IGE implementors; and (b) establish formal state networks of IGE schools.

1973

- Federal funds are granted to the R & D Center for its nationwide implementation effort cease.

- A national organization, the Association for Individually Guided Education (AIGE) is formed under the leadership of 12 state IGE coordinators. Its first annual meeting draws over 400 educators to Madison, Wisconsin.

1973-1976 - The UW/SRF Teacher Education Project provides limited funding to 14 states to establish formal state networks of IGE schools: California, Colorado, Connecticut, Illinois, Indiana, Massachusetts, Minnesota, New Jersey, Ohio, Rhode Island, South Carolina, South Dakota, Texas, and Wisconsin.

1973-1974 - An estimated 1,500 to 2,000 IGE schools are operating in 36 states.

1974 - Systemwide Policy Committee designation changes to Systemwide Program Committee.

1974-1975 - An estimated 2,500 IGE schools are operating.

The Historical Development and Diffusion of IGE in Wisconsin

Early on, of course, the development of IGE in Wisconsin and the development of IGE were generally synonymous. Moreover, as will be seen, later events transpiring in the state paralleled to a large extent the movements visible at the national level. Nonetheless, the evolution of IGE within Wisconsin is presented because it is this

particular chain of events and the particular actions of pertinent agencies which have the highest potential for impact upon the research sites of the Studies of Implementation.

In the beginning of its work, the Wisconsin R & D Center for Cognitive Learning (renamed in 1978 as the Wisconsin R & D Center for Individualized Schooling) sought representation from the Wisconsin State Department of Public Instruction (DPI) for its Steering and Advisory Committee. In addition to appointing a representative to the advisory committee, DPI created a liaison position to coordinate the research efforts of the Wisconsin R & D Center with its own ongoing program. Funds from the R & D Center were used to support this liaison position.

During its first three years, that is, from 1964-1967, the major thrust of the R & D Center was to establish Instruction and Research Units in a variety of schools for the purpose of data collection. By the end of 1967, there were 19 such units functioning in 4 Wisconsin school districts.

Two events occurred in 1967 that had significance for further implementation efforts. First, a vigorous and energetic person was appointed as the liaison between the R & D Center and the Department of Public Instruction. He served in this position until 1971, at which time he was officially designated as the state IGE coordinator for Wisconsin where he remained until 1975. Second, seven completely organized multiunit elementary schools were

created as research sites. These sites were Franklin, Winslow, Bull, and Giese in Racine; Franklin and Huegel in Madison; and Wilson in Janesville.

Early in the 1968-1969 school year, the Director of the R & D Center and a representative of the Department of Public Instruction began to formulate ideas for the expanded implementation of IGE in Wisconsin. Discussions were held with practitioners, teacher educators, and state leaders about the proposed implementation effort. From these early discussions and meetings, the idea for the Wisconsin Lighthouse School Project was conceived. The Lighthouse Project identified four teacher education institutions in four regions of the state. Each of the four teacher education institutions, with the help of the Department of Public Instruction and the Wisconsin R & D Center, agreed to establish two IGE "lighthouse" schools (demonstration schools) in each of the four regions. The chosen teacher education institutions and their "lighthouse" schools were as follows: the University of Wisconsin-Eau Claire, one school in Grantsburg and one in Rice Lake; Holy Family College, two schools in Manitowoc; the University of Wisconsin-Stevens Point, one school in Stevens Point and one in Merrill; the University of Wisconsin-Madison, one school in Janesville and one in Racine. During this time, personnel from the R & D Center, the Department of Public Instruction, and local schools developed a set of printed IGE inservice materials, 1 book and 15 videotapes.

In mid-1968, the State Superintendent of Public Instruction publicly endorsed the multiunit elementary school as a viable change in the schools and encouraged its dissemination and implementation throughout the state. This endorsement clearly enhanced the spread of IGE throughout the state.

In 1969, /I/D/E/A/, under contract to the R & D Center, began to develop new IGE inservice materials. Several Wisconsin IGE schools were chosen for inclusion in the films and printed materials. Because of the national publicity they were receiving for their education efforts, enthusiasm ran high among those educators involved with IGE.

Two implementation workshops were held prior to the 1970-1971 school year. One was in Oshkosh and the other in Eau Claire. Each workshop was designed to train key personnel (principals and unit leaders) in those schools that had made a commitment to implement IGE. At the same time, IGE schools within the state were divided into leagues of cooperating schools. By the end of the 1970-1971 school year, 99 schools in 23 of the state's school districts were incorporating the IGE innovation.

As a result of the nationwide implementation effort of the R & D Center, the Wisconsin Department of Public Instruction and the R & D Center entered into a contractual agreement which required that a minimum of 25 schools implement IGE and that a full-time state IGE coordinator be employed. The R & D Center contractually agreed to support the state's activities by providing

technical and material assistance and approximately $30,000. With the enthusiasm for IGE running high, the Department of Public Instruction assigned a second state IGE coordinator. Working together, the two IGE coordinators were successful in providing implementation activities and boosting the number of IGE schools in the state to 214 in 83 of its school districts. These schools were organized in 13 leagues of cooperating schools.

In 1973, one of the state IGE coordinators was elected State Superintendent of Public Instruction. When the University of Wisconsin/Sears-Roebuck Foundation Teacher Education Project was established, moves were made to develop a state IGE network. The Department of Public Instruction and the UW/SRF teacher education project entered into an agreement whereby the state was to establish a formal network of IGE schools. By the end of 1973, Wisconsin had established a state IGE network and the Wisconsin IGE Coordinating Council with an approved constitution, bylaws, and representatives.

From 1973 to 1975, the implementation of IGE continued. However, implementation activities were now sponsored and conducted by the Wisconsin IGE Cooordinating Council and not by the Department of Public Instruction. With its 13 leagues still operating, the Wisconsin IGE Coordinating Council successfully endorsed and conducted awareness and principal-unit leader workshops. The number of IGE schools increased to 267 in 100 of the state's school districts.

In 1975, implementation of IGE declined. Funds were no longer available from the R & D Center or from the UW/SRF Teacher Education Project. Consequently, the state IGE coordinator's position was eliminated. Since 1975, the Wisconsin IGE Coordinating Council has conducted several IGE renewal conferences. The Council was also successful in having 1 week designated in April as Wisconsin IGE Week by the Governor of the state of Wisconsin. However, few, if any, efforts were being made through the Wisconsin IGE Coordinating Council to increase the number of IGE schools in the state or to provide inservice training for potential IGE adopters.

A Timeline for the Historical Development and Diffusion of IGE in Wisconsin

1964 •The R & D Center includes a representative from the Wisconsin Department of Public Instruction on its Steering/Advisory Committee.

1964-1967 •The liaison function between the R & D Center and the Wisconsin Department of Public Instruction becomes a position supported by funds from each agency.

1965-1966 •Thirteen, nongraded Instruction and Research Units are created in four Wisconsin School Districts: Madison, Janesville, Milwaukee, and Racine.

1966-1967 •The number of Instruction and Research Units increase to 19.

1967 •A new person assumes a liaison position. The position is funded on a 50-50 basis between the R & D Center and the Wisconsin Department of Public Instruction.

1968-1969 •The Director of the R & D Center, and a representative of the Wisconsin Department of Public Instruction provide leadership in formulating a "lighthouse" model for disseminating IGE in Wisconsin.

•Four teacher education institutions in four regions of the state and the Wisconsin Department of Public Instruction, with assistance from the R & D Center, establish a Lighthouse Project and begin two "lighthouse" schools (demonstration schools) in each teacher education institution area.

•The Wisconsin Department of Public Instruction selects the Multiunit Elementary School for statewide demonstration and implementation.

•Personnel from the R & D Center, Wisconsin Department of Public Instruction, and local schools develop the first set of IGE training materials; 1 book and 15 videotapes.

1969-1970 •Wisconsin IGE schools and /I/D/E/A/ work together to develop /I/D/E/A/'s training materials.

1970-1971 •Wisconsin Department of Public Instruction conducts IGE training workshop in Eau Claire and Oshkosh. The new /I/D/E/A/ training materials are used and evaluated.

- Existing and new IGE schools are organized into leagues of cooperating schools. The number of IGE schools grows to more than 100 in 23 of the state's school districts.

1971-1973

- An agreement between the R & D Center and the Wisconsin Department of Public Instruction is made to establish IGE schools by providing awareness sessions, principal-unit leader workshops, and technical assistance. Wisconsin receives a grant to help support a full-time state coordinator and the implementation activities.
- The Wisconsin Department of Public Instruction sponsors and conducts 1-day awareness sessions and 3-day principal-unit leader workshops in several geographical areas of the state.
- IGE schools grow to 214 in 84 school districts. The state continues to be organized into 13 leagues.

1971

- A second state IGE coordinator is added.

1973

- The UW/SRF Teacher Education Project and the Wisconsin Department of Public Instruction sign an agreement which requires the state to form a network of IGE schools.
- The Wisconsin State IGE Coordinating Council is formed and its constitution and bylaws are accepted by state representatives.

1973-1974

- The Wisconsin IGE Coordinating Council sponsors and conducts several 1-day awareness sessions and 3-day principal-unit leader workshops.

•IGE schools total 237 in 96 school districts. Thirteen leagues are still operating in the state.

1974-1975 •IGE schools grow to 267 in 100 school systems. They are organized into 13 leagues.

1975 •The state IGE coordinator position is terminated. No provisions are made at the state level to provide a leadership role.

1976-1977 •The Wisconsin IGE Coordinating Council sponsors and conducts a 2-day spring renewal conference in Menomonee Falls, Wisconsin

•The Wisconsin IGE Coordinating Council successfully obtains a signed proclamation from the governor proclaiming 1-week in April as Wisconsin IGE week.

1977-1978 •One week in April is again proclaimed as Wisconsin IGE Week by the governor.

CHAPTER IV

SITE SELECTION PROCEDURES AND DESCRIPTION OF THE SAMPLING FRAME

The purpose of this chapter is three-fold: (a) to provide an overview and rationale for the process by which sites were selected for investigation in the Studies of Implementation; (b) to describe the sampling procedures of the survey necessary for the site selection process; and (c) to record the results of this survey which describe the sampling frame from which the Wisconsin research sites were selected. Characteristics of the research sites themselves are provided in the next chapter.

Rationale for the Site Selection Procedure

Logic and a review of the change literature (Rossmiller & Otto, 1978) suggested several variables of such potential significance as to warrant explicit consideration in the design of the site selection procedure. In brief,

1. To somewhat homogenize the effects of larger social conditions and legal constraints, it was reasoned that, unless circumstances dictated otherwise, the research sites should remain within a single state. To conserve resources and permit more frequent observation, it was decided to focus upon sites from within the state of Wisconsin.

2. Inasmuch as the intent of the study is to investigate the process of planned change in education, the selected sites must have demonstrated a commitment, at least in spirit, to implement what is, to them, an innovative product or process. Clearly, the selection of sites which are committed to implementing the same innovation would ease comparability across sites. Given the historical interests of the Wisconsin R & D Center for Individualized Schooling in the innovation called Individually Guided Education and the resources made available as a consequence of this interest, it was decided to focus the Studies of Implementation on this particular innovation. However, as described in some detail in Chapter I, it was reasoned that the lowest common denominator of schools proclaiming themselves to be IGE schools was a commitment on the part of these schools to program instruction to meet the needs of the individual student through the use of the Instructional Programming Model. In a very real sense, then, the innovation of primary interest to the Studies of Implementation is the Instructional Programming Model, a systematic scheme for designing instruction much akin to other models such as differentiated or focused instruction.

3. Although exceptions undoubtedly exist, the only surely defined population of IGE schools within Wisconsin are those which are members of the state IGE network. All such schools thus constituted the population from which the Wisconsin target sites were

sampled. This decision provided the further benefit of permitting the explicit investigation of the effects of networking, one form of external linkage which had been indicated by the change literature as being a potentially significant variable affecting the process of planned change (Charters & Pellegrin, 1972; Sarason, 1971).

4. Most recent accounts of the change process depict that process as being phasic (Hall et al., 1975; Paul, 1977; Rogers & Shoemaker, 1971; Sieber, Louis, & Metzger, 1974; Stiles & Robinson, 1973; Walter, 1976; and Zaltman, Duncan, & Holbeck, 1973). Although there is considerable disagreement among scholars as to the precise number and ordering of such phases, few would disagree that such phases exist (e.g., adoption, mechanical use, renewal, refinement) and that organizational behavior presumably varies as a function of phase. Moreover, particularly little is known about how the duration of the phases effects the nature of the events which govern movement from one phase to the next. Given, then, that the intent of the present study is to investigate the change process in all its phases, it is, however, limited in duration to 3 years. It would seem, therefore, of paramount importance that the sites cover the range of these phases. Unfortunately, the state of the art does not permit placing a school in a particular phase of implementation without considerable observation of the practices of that school, and then only if one is willing to accept a particular theoretician's model of the change process. Clearly, such observation prior to site selection is not feasible within the resource

and time allocations of the study. The lack of such direct measurement of the present phase of implementation and the length of time which has transpired since the decision was made to attempt the implementation emerges as a potentially relevant and measurable surrogate variable. Consequently, the sampling plan for site selection was required to yield sites which varied in the number of years they claimed to have been IGE schools.

5. The change literature suggests that external linkage and organizational complexity may well be significant factors affecting the change process (Cole, 1971; Corwin, 1972; Crowther, 1972; Fullan & Pomfret, 1977; Paul, 1977; and Evans & Scheffler, Note 6). Furthermore, it is generally acknowledged that urban schools either suffer or profit from their existence within a larger oganizational structure; this is not true for nonurban schools (Downey & Associates, 1975; Fink & Ducharme, 1971; Fullan & Pomfret, 1977; House, 1975; Jesser, 1975; and Levine, 1971). It seemed warranted to earmark the urban/nonurban dichotomy as a potentially fruitful variable for investigation. The sampling plan for site selection was therefore required to yield sites from both locales. Within Wisconsin, this necessitated the selection of at least some sites from Milwaukee, the state's only indisputably urban area.

6. The change literature also suggests that certain dimensions of the character of the innovation itself may play important roles in determining how efficiently and effectively the innovation is implemented within an organization (Fullan & Pomfret, 1977; Paul, 1977;

Pincus, 1974; and Zaltman & Lin, 1971). It seems reasonable to suspect that the process of implementing the particular innovation of the Instructional Programming Model is affected by the availability of supporting instructional materials. In particular, the Wisconsin R & D Center for Individualized Schooling has developed and disseminated two curricular products, the Wisconsin Design for Reading Skill Development (WDRSD) and Developing Mathematical Processes (DMP), both of which are explicitly structured to promote usage of the IPM. Although IGE schools are not obligated to use these materials because of the relationship between IGE, the curricular packages, and the Wisconsin R & D Center, the usage of these packages in IGE schools is heightened. Therefore, in order to investigate the effect of the curricular packages upon the process of implementing the IPM, the sampling plan for site selection was required to yield sites which made use either of WDRSD or DMP, both WDRSD and DMP, and neither WDRSD nor DMP.

In summary, then, the population of potential research sites was originally limited to Wisconsin elementary schools which are members of the state IGE network. The population of such Wisconsin schools was stratified by the number of years a school claimed to be an IGE school, whether the school was located in a nonurban or an urban (Milwaukee) area, and by usage of the WDRSD and DMP curricular products. With one exception, potential research sites were then randomly selected from these strata. The exception involved the deliberate selection of a nonurban school which had just made

the decision to implement IGE and the IPM. The opportunity to examine a new school, and thus to witness the beginnings of the implementation process, seemed to warrant its nonrandom selection.

A troublesome feature of this sampling plan, however, was the questionable representativeness of the urban schools which, by necessity, all have to be located in Milwaukee. A point of comparison seemed to be in order. Serendipitously, another work-group of the Wisconsin R & D Center had established contact with three non-Wisconsin urban sites which had chosen to adopt and implement Developing Mathematical Processes (DMP), a curricular product geared toward enhancing the use of the Instructional Programming Model. Interestingly, although all these sites were located in a large eastern metropolitan school district, they had made no commitment to the adoption of IGE. However, their actions represented a commitment, albeit indirectly, to the IPM. Moreover, informal discussions revealed that both parties were interested in learning more about the processes and effects of implementing DMP.

The decision to acquire these three additional sites was made on the basis of several opportunities. First, collection of data in two urban areas allowed for at least some cross-urban analyses. Second, the impact of the IGE context on the process of implementing individualized instruction permitted examination. And, third, the possible importance of the external environment to an adopting agency was highlighted for exploration since the efforts at these sites took place not only outside the direct influence of the

IGE network, but also without widespread companionship within their own district.

With these decisions made, the final number of sites to be selected for observation was constrained by the projected methodology of the Studies of Implementation. Without doubt, the process of implementing planned change is complex. Even a casual analysis of the change literature reveals that existing knowledge in this area is, at most, suggestive of broad, imprecisely defined factors which might affect the implementation process. Put differently, the state-of-the-art is not yet so developed as to warrant the empirical test of a comprehensive set of theoretically derived hypotheses. At this point in time, effort should rather be expended upon carefully and systematically observing schools as they attempt to implement change with the goal being that generating testable hypotheses for future examination. The present study accepted such an open-ended methodology as a working premise and recognized the principal that such a methodology obtains its strength by providing data rich in detail while paying the price of offering limited generalizability. Hence, the balancing point necessitated by accepting a so-called ethnographic methodology is one of promoting generalizability by selecting a sufficiently large number of research sites. Yet in so doing, the importance of not sacrificing the ability to generate the richness of data was the reason for selecting such a methodology in the first place.

Given the resources available to the present study and the potentially critical factors outlined above, it was decided that no more than 13 schools could be adequately studied at one time. The 13 schools were required to have the following characteristics:

1. A nonurban school just beginning implementation of IGE
2. A nonurban implementor of IGE for 1 to 3 years
3. A nonurban implementor of IGE for 4 to 6 years
4. A nonurban implementor of IGE for more than 6 years
5. A nonurban implementor of DMP but not the Design
6. A nonurban implementor of the Design but not DMP
7. A nonurban implementor of both DMP and the Design
8. An urban implementor of IGE for 1 to 3 years
9. An urban implementor of IGE for 4 to 6 years
10. An urban implementor of IGE for more than 6 years
11. An urban implementor of the Instructional Programming Model

Prelude to Wisconsin Site Selection: A Survey Sampling Procedure

The sampling plan proposed in the preceding section is a mixture of purposeful and stratified random sampling. Procedurally, the stratified random segment of the sampling plan required the possession of certain information about each potential site in

the population (e.g., number of years in IGE network) which was not currently available. A survey was conducted to obtain this and related information. A copy of the survey questionnaire appears as Appendix B. As is seen, the questionnaire solicits information regarding four characteristics of the school:

1. the number of years the school has been an IGE school;

2. the size of the school in terms of the number of instructional units, staff, and students;

3. the architectural design of the building facility;

4. the use or nonuse of DMP and WDRSD, in each of their elements, their grade level, and whether their usage was modified.

The elected representatives of each of Wisconsin's 12 IGE leagues were contacted and asked to supply the names and addresses of league member schools. The representatives identified 178 such schools. Each school was issued a survey questionnaire. After a reasonable length of time, nonrespondents were telephoned and urged to respond. In all, 136 schools or 76.4% of the population completed the questionnaire in useable form. These 136 schools thus constituted the sampling frame from which the Wisconsin research sites were drawn. No significant differences were observed between survey respondents and survey nonrespondents with respect to geographic region. No unusual circumstances were perceived to have occurred that might have systematically biased certain schools not to respond to the survey.

Prelude to Wisconsin Site Selection: Description of the Sampling Frame

This section summarizes the results of the questionnaire survey. The results are recorded and discussed with respect to the five major dimensions of the questionnaire.

Longevity as an IGE School

The 136 schools responding to the survey claimed to have been IGE schools for an average of 6.56 years with a standard deviation of 2.49 years. Ten schools designated themselves as being IGE schools for less than 1 year while, at the other extreme, two schools had been implementing the IGE innovation for 11 years. The frequency distribution of all 136 schools is recorded in Table 1. As covered more fully in Chapter II, the years from 1971-1973 were years of intensive implementation activities by both internal and external agents. More particularly, the Wisconsin R & D Center for Individualized Schooling received funds in 1971 to conduct an extensive nationwide IGE diffusion effort. To receive funding through the R & D Center, each participating state was required to have a contracted number of its schools adopt the IGE innovation. Wisconsin was one of these participating states. In this light, a reasonable explanation for the precipitous decline in the number of Wisconsin schools adopting IGE after 1973 was caused by the concurrent withdrawal of federal funding to support the R & D Center's national

Table 1

Longevity as an IGE School: Frequency Distribution of the Sampling Frame

Years as IGE school	Approximate year of adoption	Number of schools (N = 136)	% of Total	Cumulative %
< 1	1978	10	7.4	7.4
1	1977	4	2.9	10.3
2	1976	3	2.2	12.5
3	1975	6	4.4	16.9
4	1974	8	5.9	22.8
5	1973	24	17.6	40.4
6	1972	23	16.9	57.3
7	1971	27	19.9	77.2
8	1970	21	15.4	92.6
9	1969	8	5.9	98.5
10	1968	0	0.0	98.5
11	1967	2	1.5	100.0

implementation effort. As a consequence of this action, the Center's implementation efforts were sharply curtailed and, of course, the monetary support to "participating" states ceased altogether.

Size of School

The survey questionnaire gathered information pertaining to several facets of the size of the responding schools. On the average, the 136 schools had an enrollment of 381 students, but varied widely in this regard as revealed by the standard deviation of 167 students. The smallest school had but 78 students; the largest 1,070. The hypothetically average school had a staff of 15 classroom teachers (SD 6.9), 6.8 support staff (SD 3.5), and 4.3 paid aides (SD 3.2). Organizationally, the average school had 3.1 instructional units (SD 1.4), 0.5 music-art-physical education units (SD 0.5), and 0.7 special services units (SD 0.8). For reference, Tables 2 through 6 provide more detail concerning the variation in size among Wisconsin schools currently implementing the IGE innovation.

Architectural Design of the School Facility

Each school was asked to classify the design of its building. Was it the traditional (egg crate) single classroom design, the pod design, the open design, or some other type? The responses elicited from this question are recorded in Table 7. As would

Table 2

Frequency Distribution of Student Enrollment

Student enrollment	Number of schools	Cumulative %
51-150	13	9.6
151-250	17	22.1
251-350	24	39.7
351-450	32	63.2
451-550	34	88.2
551-650	10	95.6
651-750	2	97.1
751-850	3	99.3
851-950	0	99.3
951-1,050	0	99.3
1,051-1,150	1	100.0

Table 3

Classroom Teachers: Frequency Distribution

Number of classroom teachers	Number of schools	Cumulative %
1-2	2	1.5
3-4	19	15.4
8-12	24	33.1
13-17	42	64.0
18-22	37	91.2
23-27	5	94.9
28-32	5	98.5
33-37	1	99.3
38-42	1	100.0

Table 4

Support Staff: Frequency Distribution

Number of support staff	Number of schools	Cumulative %
None	6	4.4
1-2	43	36.0
3-4	32	59.6
5-6	24	77.2
7-8	20	91.9
9-10	8	97.7
11-12	1	98.5
13-14	1	99.3
15-16	0	99.3
17-18	0	99.3
19-20	0	99.3
21-22	1	100.0

Table 5

Paid Aides: Frequency Distribution

Number of paid aides	Number of schools	Cumulative %
None	6	4.4
1-2	43	36.0
3-4	32	59.6
5-6	24	77.2
7-8	20	91.9
9-10	8	97.7
11-12	1	98.5
13-14	1	99.3
15-16	0	99.3
17-18	0	99.3
19-20	0	99.3
21-22	1	100.0

Table 6

Organizational Units: Frequency Distribution

Number of units	Instructional units		MAPE units		Special services units	
	Number of schools	Cumulative %	Number of schools	Cumulative %	Number of schools	Cumulative %
0	2	1.5	64	47.1	63	46.3
1	11	9.6	72	100.0	57	88.2
2	33	33.8			12	97.1
3	43	65.4			2	98.5
4	29	86.8			2	100.0
5	8	92.6				
6	8	98.5				
7	1	99.3				
8	0	99.3				
9	1	100.0				

Table 7

Architectural Design of the School Facility

Type of design	Number of schools (N = 134)	% of total
Traditional	74	55.2
Pod	16	11.9
Open	19	14.2
Other	25	18.7

be expected, the traditional design predominated with fully 55% of the schools so classifying themselves. The remaining designs were near equivalent to each other in frequency.

Use of R & D Center-Developed Curricular Products

Each school was requested to indicate its use of two of the curricular products developed by the Wisconsin Research and Development Center for Individualized Schooling: Developing Mathematical Processes (DMP) and the Wisconsin Design for Reading Skill Development (WDRSD). As shown in Table 8, only 12% of the schools indicated use of DMP. The length of time that DMP had been in use in a particular school was varied, with the largest number of schools (four) being involved for the second year with the innovative curricular package (see Table 9). The small percentage of schools that adopted DMP may be attributed to two factors: (a) DMP is a radical change from the traditional "textbook" approach which characterizes the majority of the elementary school mathematics programs; and (b) DMP has relatively recent availability to schools. DMP, as a total elementary mathematics program, has only been on the open market since 1976.

The Wisconsin Design for Reading Skill Development (WDRSD) clearly shows predominant use as the reading curriculum in the reporting schools. Word Attack is the most widely used component of WDRSD, its use being reported in fully 74% of the schools. The

Table 8

Developing Mathematical Processes (DMP):

Frequency Distribution of Use

Response	Number of schools	% of total
Using DMP	12	12
Not using DMP	124	88

Table 9

Diffusion Pattern of the Use of DMP

Number of years in use	Approximate year of adoption	Number of schools (N = 12)	% of total
1	1977	1	8
2	1976	4	32
3	1975	2	17
4	1974	1	8
5	1973	2	17
6	1972	1	8
7	1971	0	0
8	1970	1	8

Study Skills (54%) and Comprehension (30%) components are in somewhat more moderate but nevertheless substantial use within the schools. On the other hand, the three remaining components: Self-directed Reading, Creative Reading, and Interpretive Reading were reported as being in minimal use (less than 6%). Table 10 summarizes the distribution of the use of WDRSD among its components.

The number of years schools have been using the three most popular components of WDRSD is shown in Table 11. Seventy-five percent of the schools using Word Attack have been using it from 4 to 8 years. A decline in schools using Word Attack has occurred over the past 3 years. Seventy-two percent of the schools using Study Skills have been doing so for 2 to 5 years. Its use, like Word Attack, has declined in the past year. Comprehension presents a mixed pattern of use. Its use is more recent, beginning 5 years ago. Last year 31% of the schools began to use this component.

Two factors, the degree of implementation effort and commercial availability, may help explain the diffusion patterns for these three components of WDRSD. During the years 1971-1974 both Word Attack and Study Skills received extensive implementation emphasis through the R & D Center's IGE implementation effort. Both were used to demonstrate how IGE should be implemented in reading. Comprehension, still in its early developmental version, was not employed in that effort. The greater popularity of Word Attack over Study Skills may also be linked to the implementation emphasis. During the implementation and training sessions, care was taken to

Table 10

The Wisconsin Design for Reading Skill Development (WDRSD):

Frequency Distribution of Use by Component

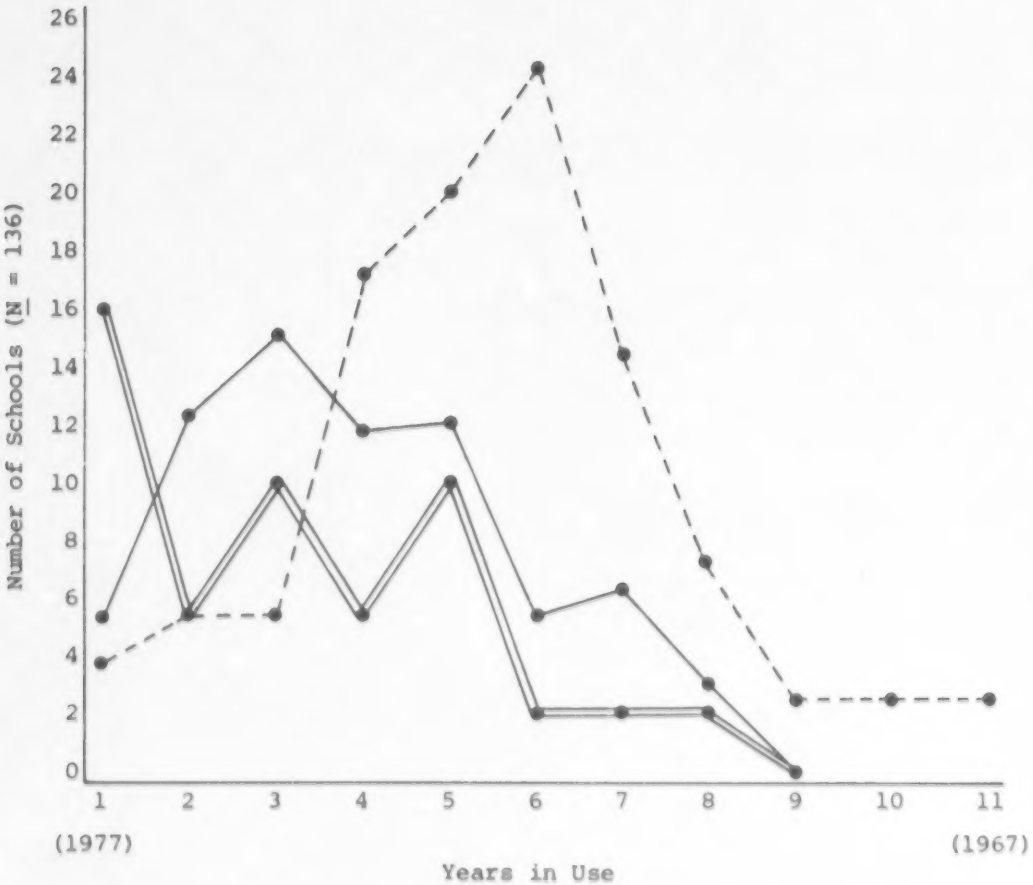
WDRSD component	Number of schools (N = 136)	% of total
Word Attack	101	74
Study Skills	74	54
Comprehension	51	38
Self-directed	7	5
Creative	4	3
Interpretive	3	2

emphasize that only one component of WDRSD should be started at a time. Since Word Attack was more closely related to the focus of the traditional reading program and easier to implement than Study Skills, its use was greater than that of Study Skills. This is shown vividly on Table 11.

The diffusion pattern for Comprehension is most closely related to its availability. At the time of the survey this component had been commercially available to schools for only 1 year. As Table 11 also illustrates, its use was new to 31% of the schools that year.

Table 11

Diffusion Pattern of the Use of WDRSD



CHAPTER V

DESCRIPTION OF THE RESEARCH SITES

As indicated in the previous chapter, 10 Wisconsin and 3 non-Wisconsin elementary schools became the research sites for the Studies of Implementation. Basically, random selection procedures were used to identify potential sites from among three strata posited upon: (a) the number of years as an IGE school, (b) the geographic location (urban or nonurban), and (c) the use or non-use of the curricular products developed at the Wisconsin R & D Center.

Contact was first made with each corresponding school district to obtain permission to conduct research in the selected sites. The usual procedure for research clearance involved presentation of the research proposal to the superintendent or research department of the various school districts. Once central office permission was obtained, contact was made with each building principal. Next the research proposal was presented to teachers at representative or all staff meetings. Researchers emphasized that participation was voluntary and that all data would be filed confidentially.

Of the original nine randomly selected Wisconsin sites (one Wisconsin site was selected deliberately), seven agreed to partici-

pate in the study. An eighth school was obtained by randomly selecting another school which met the desired characteristics of the refusing school. In the ninth case, it was not possible to obtain a school which met the desired criteria of being an urban implementor of IGE for more than 6 years. A replacement school which met one of the two characteristics (it had been implementing IGE for only 4 years) was found, however, and this school was later acquired as a research site.

In order to be able to refer to the research sites and yet assure their anonymity, a coding procedure has been devised. Instead of referring to the sites by name, each school has been assigned a number: the 10 Wisconsin schools were coded from 01 to 10; the 3 non-Wisconsin urban schools were designated 21 through 23 to reflect their difference from the other research sites. With one exception, the order of the schools from 01 to 10 reflects their age in IGE; schools 21, 22, and 23, of course, are not IGE schools. Schools newer to IGE have lower numbers than more seasoned implementors. The one exception to the ordered sequence is school 10. As previously mentioned, school 10 was intended to be an urban implementor of IGE for more than 6 years. Since no school meeting those criteria was obtainable, school 10 is an urban implementor of IGE for only 4 years. School 10 is not the oldest implementor of IGE as its code number would suggest.

Table 12 summarizes the desired characteristics of the 10 Wisconsin research sites and the 3 non-Wisconsin urban sites. It

Table 12

The Research Sites: Desired Characteristics and the Characteristics and Code Numbers of Sites Obtained

The 10 sites: Desired Characteristics	Code number and characteristics of obtained sites
Site A (nonurban; beginning IGE)	School 01 (nonurban; beginning IGE)
Site B (nonurban; IGE for 1-3 years)	School 03 (nonurban; IGE for 2 years)
Site C (nonurban; IGE for 4-6 years)	School 05 (nonurban; IGE for 6 years)
Site D (nonurban; IGE for more than 6 years)	School 09 (nonurban; IGE for 7 years)
Site E (nonurban; DMP but not WDRSD)	School 08 (nonurban; DMP only)
Site F (nonurban; WDRSD but not DMP)	School 06 (nonurban; WDRSD only)
Site G (nonurban; both DMP and WDRSD)	School 07 (nonurban; both DMP and WDRSD)
Site H (urban; IGE for 1-3 years)	School 02 (urban; IGE for 1 year)
Site I (urban; IGE for 4-6 years)	School 04 (urban; IGE for 4 years using DMP)
Site J (urban; IGE for more than 6 years)	School 10 (urban: IGE for 4 years)
Site K (non-Wisconsin; urban; implementor of the IPM)	School 21 (non-Wisconsin; urban; implementor of the IPM for 1 year)
Site L (non-Wisconsin; urban; implementor of the IPM)	School 22 (non-Wisconsin; urban; implementor of the IPM for 1 year)
Site M (non-Wisconsin; urban; implementor of the IPM)	School 23 (non-Wisconsin; urban; implementor of the IPM for 1 year)

also contains the characteristics of the 13 research sites which have agreed to participate in the study and their code numbers.

Demographic Characteristics of the Research Sites

In Chapter IV, the responses of 136 Wisconsin IGE schools to the preliminary survey were reported. In this section, the survey responses of the 10 Wisconsin schools which have agreed to participate in the study will be presented along with the comparable data related to the 3 non-Wisconsin sites. As in the previous chapter, the responses will be discussed with respect to the major dimensions of the survey questionnaire.

Longevity as an IGE School

Table 13 records the length of time that each of the research sites were involved with IGE.

The range of years in IGE for the 10 relevant research sites is from 1 to 7 years. Half of the 10 schools adopted IGE between 1970 and 1973, a phenomenon that was similarly true in the responses of the 136 schools. Once again, this is not surprising, given the history of the development of IGE as cited earlier.

Size of School

The number of students in the research sites ranged from 97 to 750. The smallest school reported having only 5 teachers whereas

Table 13

Longevity of the Research Sites as

IGE Schools (Spring 1978)

School by code number	Years as an IGE school	Approximate year of adoption
01	< 1	1978
02	1	1977
03	2	1976
04	4	1974
05	6	1972
06	7	1971
07	7	1971
08	7	1971
09	7	1971
10	4	1974
21-23	(non-IGE)	-

the largest school listed 40 classroom teachers on the staff. Table 14 provides an individual school breakdown of student enrollment and number of classroom teachers at each site.

Information was gathered about the size of the support staff and paid teacher aides in the schools as well. Support staff was defined as teachers of music, art, physical education, special education, etc. The range among the research sites was from 1.4 to 13 support staff. The smallest number of paid aides was 2; the largest was 21. In Wisconsin, three urban sites (schools 02, 04, and 10) reported having substantially more aides than the remaining seven nonurban sites. Table 15 records these data.

By design, a common feature of IGE schools is the unitized organization. Instruction and Research Units are composed of unit leaders and regular classroom teachers; music, art, and physical education teachers are formed into MAPE units; and special service units include special education teachers, guidance personnel, and other specialists not included in the two other types of units.

According to responses from the survey questionnaire, all 10 Wisconsin schools had at least two instructional units. Four of the 10 schools reported having three instructional units, while the four remaining schools had four.

Half of these schools reported that they did not have any MAPE units. The other five schools reported having one MAPE unit. Of course, the lack of a MAPE does not necessarily mean that a

Table 14

Student Enrollment and Number of

Classroom Teachers at Sites

School by code number	Student enrollment	Classroom teachers
01	437	18
02	525	20
03	315	13
04	468	18
05	97	5
06	350	13
07	395	14.5
08	285	12
09	465	17
10	500	15
21	620	26
22	750	40
23	507	25

Table 15

Support Staff and Paid Aides

School by code number	Number of support staff	Number of paid aides
01	12	4
02	13	21
03	8	4.5
04	4.8	11
05	9	2
06	1.4	2
07	3.8	2.5
08	6	2
09	6	4
10	3.8	10
21	11	8
22	30	21
23	17	20

school does not house teacher specialists in the areas of music, art, and physical education. Rather, it suggests that these professionals, where present, function individually and do not participate in joint planning or teaching arrangements.

Six of the 10 research sites also reported that they did not have special service units. As in the case of MAPE units, the lack of a special service unit does not necessarily mean an absence of specialized teachers in the schools. The remaining schools in the sample had one special service unit.

Table 16 lists the distribution of the organizational units within the research sites.

Architectural Design of the School Facility

Although pod arrangement is considered the "ideal" architectural design for IGE schools, the traditional single classroom layout predominated at the research sites. Interestingly, the three schools among the research sites which were newly built in conjunction with the decision to adopt IGE (schools 01, 04, and 10) are all at least partially pod by design. Table 17 delineates the responses of the schools with respect to architectural design.

The Number of Years of Experience Held by the Building Principal

As illustrated in Table 18, the building principals ranged widely in terms of number of years they held the principalship. One principal had served less than 1 year while another had served 29. However, the vast majority of the principals, 11 out of 13, had less than 10 years of experience.

Table 16

Organizational Units

School by code number	Instructional units	MAPE units	Special service units
01	3	1	1
02	3	0	1
03	3	1	0
04	4	0	0
05	2	1	1
06	2	0	0
07	4	0	0
08	3	0	0
09	4	1	1
10	4	1	0

Note. Not applicable to schools 21, 22, and 23 which are non-IGE schools.

Table 17

Architectural Design of the School Facility

School by code number	Type of design
01	Pod
02	Traditional
03	Traditional
04	Pod
05	1/2 Pod; 1/2 Traditional
06	Traditional
07	Traditional
08	Open
09	Traditional plus some pairs of adjoining rooms
10	1/2 Pod; 1/2 Open
21	Traditional
22	Traditional
23	Traditional

Table 18

Years of Experience of the Building Principal

School by code number	Years experience
01	5
02	5
03	1
04	4
05	2
06	13
07	8
08	29
09	7
10	4
21	4
22	5
23	2

Use of Wisconsin R & D Center Curricular Products

Information was collected about the use or nonuse of several Wisconsin R & D Center curricular products: Developing Mathematical Processes (DMP), the Wisconsin Design for Reading Skill Development (WDRSD), Individually Guided Motivation (IGM), and the Pre-Reading Skills Program (PRS). Table 19 describes this use or nonuse information, the grade levels at which the products are being used, and whether the individual schools reported having modified the curricular materials.

With the exception of school 01, all research sites use at least one element of the four R & D Center products. Seven of the 13 schools use at least one element of the Wisconsin Design for Reading Skill Development (WDRSD) and six schools use Developing Mathematical Processes (DMP). Only one school (07) uses both the WDRSD and DMP. School 07 was also the only site to report useage of Pre-Reading Skills (PRS). Similarly, only one school (08) reported using Individually Guided Motivation (IGM).

As Table 19 suggests, decisions to adopt the various curricular products of the Wisconsin R & D Center by the research sites were accompanied by decisions to implement useage of the materials at all grade levels. In all but five cases, the schools reported implementing the curricular products schoolwide. The exceptions were in school 05, which used the Word Attack element of the WDRSD only in grades one and two, and in school 08, which used DMP only in the kindergarten through second grade instructional unit.

Table 19

Use of Wisconsin R & D Center Products, Grade Level, and Whether Materials have been Modified: Frequency Distribution of the 13 Research Sites

School	Developing Mathematical Processes (DMP)	Word Attack	Comprehension	Study Skills	Creative Reading	Interpretive Reading	Self-directed Reading	Individually Guided Motivation (IGM)	Pre-Reading Skills (PRS)
01	NU	NU	NU	NU	NU	NU	NU	NU	NU
02	NU	K-6; NM	NU	K-6; NM	NU	NU	NU	NU	NU
03	NU	K-6; M	K-6; M	K-6; M	NU	NU	NU	NU	NU
04	K-6; NM	NU	NU	NU	NU	NU	NU	NU	NU
05	NU	1-2; NM	NU	NU	1-5; NM	1-5; NM	1-5; NM	NU	NU
06	NU	K-6; NM	1-6; NM	1-6; NM	NU	NU	NU	NU	NU
07	K-6; NM	1-6; M	NU	1-6; M	NU	NU	NU	NU	K;M
08	K-2; NM	NU	NU	NU	NU	NU	NU	"Partly"--no further information.	NU
09	NU	Used 2 years; discontinued	1-6; no other information	U; no other information	NU	NU	NU	NU	NU
10	NU	K-6; M	NU	K-6; M	NU	NU	NU	NU	NU
21	K-3; NM	NU	NU	NU	NU	NU	NU	NU	NU
22	K-3; NM	NU	NU	NU	NU	NU	NU	NU	NU
23	K-3; NM	NU	NU	NU	NU	NU	NU	NU	NU

Note. The Key for this table is as follows:

U = Used.
NU = Not used.
M = Materials have been modified by school personnel.
NM = Materials have not been modified.

Schools 21, 22, and 23 are currently implementing DMP in kindergarten through grade three, with plans to add one grade level each year.

Generally, schools which reported using R & D Center curricular products did not modify the materials. But schools which reported modifying any one of the products tended to modify all the products they used.

Demographic Characteristics of the Research Sites Within the Context of Their School Districts

In addition to information gathered about the research sites, data were assembled concerning the school districts themselves. More particularly, information about costs per pupil, professional staff/student ratio, number of minority students, and nonpublic enrollment in the districts will now be presented.

Costs Per Pupil

The state of Wisconsin's average costs per pupil for the 1976-1977 school year were approximately $1,700. As indicated in Table 20, the three urban schools (02, 04, 10) had the highest average costs per pupil. One other school (08) also exceeded the state average, in this case by $100. School 03 spent approximately the state average and the remaining five Wisconsin schools spent between $200 and $400 less than the average state costs per child.

The metropolitan district containing the three non-Wisconsin urban sites follows the pattern set in urban Wisconsin. The dis-

Table 20

Costs Per Pupil[a] in the School Districts of the 13 Research Sites Compared to the State Average Costs/Pupil

School by code number	Costs per pupil by the school districts compared to the state average
01	$ -400
02	+250
03	0
04	+250
05	-200
06	-200
07	-300
08	+100
09	-400
10	+250
21-23	+ 50

[a]Rounded to the nearest $50.

Note. Wisconsin data derived from the Wisconsin Department of Public Instruction (1977-b).

trict's per pupil expenditures are slightly above the state average. While the average state costs per pupil were $2,138, the district expended $2,211.

Professional Staff/Student Ratio

The ratio of professional staff to the number of students for each district is displayed in Table 21. This ratio does not reflect the number of students per classroom because professional staff includes school psychologists, counselors, social workers, and auxiliary staff who do not have regular instructional responsibility.

As the table illustrates, the range in professional staff per student varies from 1:16 to 1:19 among the Wisconsin sites. There does not seem to be any obvious relationship between this ratio and costs per pupil when the data from Table 20 and 21 are compared. In other words, school districts that spend more per pupil do not necessarily have lower professional staff per student ratios.

The non-Wisconsin urban district has a professional staff per student ratio of 1:15.82. Two of the research sites are below the district average: school 22, 1:10.71; and school 23, 1:12.07. School 21 has a ratio of 1:16.75 and is above the district average. School 21 is one of the district's first schools to desegregate. Schools 22 and 23 are two of the district's magnet schools. They are in the district's second series of schools to desegregate.

Table 21

Professional Staff Per Student Ratio in the School Districts of the 13 Research Sites

School by code number	Professional staff per student
01	1:18.6
02	1:18.8
03	1:16.3
04	1:18.8
05	1:16
06	1:19
07	1:17.3
08	1:16.8
09	1:18.2
10	1:18.8
21-23	1:15.8

Note. Wisconsin data derived from the Wisconsin Department of Public Instruction (1977-a).

Minority Student Population

In each of the school districts, the percentage of minority students in the student population has been calculated. Table 22 contains this information. Except in the urban communities (schools 02, 04, 10, 21, 22, and 23), minority student population is very sparse. A more careful analysis of the minority students in the districts revealed that the ethnic origin of the minority groups varied across the sites. In schools 02, 04, 08, 10, 21, 22, and 23, the minority students were predominantly Black. In schools 03, 05, 06, and 07, Native Americans were the predominant group. In school 01, the largest number of minority students were of Asian or Pacific Island origin. And, finally, most minority students in school 09 were Hispanic.

Nonpublic Enrollment

Table 23 lists the percentage of children in each of the school districts of the research sites enrolled in nonpublic schools. During the 1977-1978 school year, approximately 15.7% of Wisconsin's school age children were enrolled in private or parochial schools. Hence, as Table 23 indicates, only one of the Wisconsin districts other than the urban district (schools 02, 04, 10) exceeds the state average in nonpublic school enrollment. The remaining Wisconsin schools have between 1 and 14% fewer children enrolled in nonpublic schools than the state average. In the non-Wisconsin district 27.01% of the students are enrolled in nonpublic schools.

Table 22

Percent of Minority Students in the School District of the 13 Research Sites

School by code number	% of minority students
01	.7
02	46.8
03	.9
04	46.8
05	1.5
06	1.7
07	1.5
08	.7
09	.8
10	46.8
21-23	51.7

Note: Wisconsin data derived from the Wisconsin Department of Public Instruction (1977-a).

Table 23

Percent of Students Enrolled in Nonpublic Schools in the School Districts of the 13 Research Sites

School by code number	% in the district
01	6
02	23
03	5
04	23
05	8
06	14
07	25
08	10
09	1
10	23
21-23	27.1

Note. Wisconsin data derived from the Wisconsin Department of Public Instruction (1978).

The Research Sites in Summary

School 01

School 01 is nestled in the rolling hills of rural Wisconsin. The community in which this brand new school is located has fewer than 5,000 perople. A largely homogeneous community, fewer than 1% of its residents are members of minority groups.

The average costs per pupil in school 01's district are approximately $400 below the state average. The districtwide professional staff per student ratio is 1:18.6. Approximately 6% of the school district's children are enrolled in private or parochical schools.

Although school 01 is just beginning IGE this year, the principal has more than 5 years of administrative experience. Architecturally, the school is arranged into pods specifically designed to facilitate the organizational and curricular aspects of Individually Guided Education. Organizationally, the 18 classroom teachers and 12 support teachers are arranged into 3 instructional units, 1 MAPE unit, and 1 special service unit. Four paid aides complete the staff which serve over 400 students. At the present time, school 01 is not using any of the curricular products of the Wisconsin R & D Center.

School 02

School 02 is located in the heart of Wisconsin's largest urban area. Districtwide, the average costs per pupil exceed the state average by more than $200. The number of district children enrolled

in nonpublic schools also exceeds the state average (by 8%). The professional staff per student ratio districtwide is 1:18.8.

School 02's 500 students are almost all children of racial minorities. Housed in an older building, school 02 features the traditional architectural school design with individual classrooms spaced along long, central halls. The principal has been the building administrator for 5 years and was present through the transition to IGE. Twenty classroom teachers are organized into three instructional units. There is one special service unit. There is no MAPE unit although 13 support teachers are on the payroll. Federal funding helps support the 21 paid aides in the school.

Though just beginning their second year in IGE, school 02 is using two elements of the WDRSD--Word Attack and Study Skills--in kindergarten through grade six. They have not modified these materials.

School 03

School 03 is located in a very small community of fewer than 2,000 residents. Less than 1% of the school district's children are minority students. The community supports its schools at roughly the same level as the Wisconsin average costs per pupil. The professional staff per student ratio districtwide is 1:16.3. Only about 5% of the district's children attend private or parochial schools.

A staff of 13 classroom teachers, 8 support teachers, and 4.5 paid aides service more than 300 students. Organizationally, the school has three instructional units, one MAPE unit, and no special service units. Architecturally, it is traditional in design. The principal who is beginning his second year as building administrator, was not present when IGE was adopted 3 years ago.

Currently, school 03 reports using three elements of the WDRSD--Word Attack, Comprehension, and Study Skills. These materials are being used in a modified form by students in kindergarten through grade six.

School 04

School 04 is similar to school 02 in that it is located in Wisconsin's largest urban area. Therefore, districtwide characteristics are identical: average costs per pupil are higher than the state average (+$250); the nonpublic school enrollment is higher than the state average (+8%); the professional staff per student ratio is 1:18.8; and the minority population enrollment is 46.8%.

Unlike school 02, school 04 is housed in a newer building which was designed to be an IGE school. The four instructional units are arranged in pods. There are neither MAPE nor special service units, but there are 4.8 FTE support staff. A total of 18 classroom teachers and 11 aides also work with the more than 400 students. The minority population in the school is roughly one-third. The current principal began administering the building 4 years ago when it opened as an IGE school.

The school reports using DMP in kindergarten through grade six in a nonmodified form.

School 05

School 05 is a small country school of less than 100 students. The children are arranged into two instructional units: first and second grades and third through fifth grades. The lower unit occupies individual classrooms while the upper unit shares one large pod. A total of five regular teachers, nine special teachers, and two aides work with the two instructional units. There is one MAPE and one special service unit each. The building principal, who has 2 years of experience, administers school 05 in addition to another elementary school in the district.

School 05 has been an IGE school for 6 years. It uses four elements of the WDRSD--Word Attack (grades 1-2), Creative Reading (grades 1-5), Interpretive Reading (grades 1-5), and Self-directed Reading (grades 1-5)--in a nonmodified form.

Districtwide, the school system spends $200 per pupil less than the state average. The professional staff per student ratio is 1:16. The percentage of minority students is 1.5 and the percentage of district children enrolled in nonpublic schools is about 8.

School 06

One of the longest implementors of IGE in the sample, school 06 has been involved in IGE for more than 7 years. Located in a com-

munity of 50,000 people, school 06 has approximately 350 students. There are 13 regular classroom teachers and 1.4 support staff. Regular classroom teachers are responsible for providing music, physical education, and art experiences for their students. Two paid aides work with two instructional units.

The building is traditional by design. Some sliding partitions have been placed between adjoining classrooms to facilitate the IGE instructional program.

The principal of the school has 13 years of administrative experience and became principal of school 06 the year that implementation of IGE began.

Some elements of the WDRSD are used in school 06. Specifically, Word Attack, Comprehension, and Study Skills are employed. All three elements are used in grades one through six, with Word Attack also being used in kindergarten. None of these programs have been modified by the school staff.

The district, of which school 06 is a part, maintains a 1:19 professional staff per student ratio. It funds its program at a level below that of the state average. About 14% of the district's children are in private or parochial schools. Only 1.7% of the district's students are from minority groups.

School 07

School 07 shares several characteristics with school 06: (a) both are located in communities of about 50,000 people; (b) both have implemented IGE for 7 years; (c) both are traditional in archi-

tectural design; (d) both have less than 2% minority population; and (e) both districts' average costs per pupil are below the state average.

However, school 07 has several unique features as well. It is the only school in the research sample which uses both DMP and the WDRSD. It is also the only school using the Pre-Reading Skills Program. DMP is used in kindergarten through grade six in a non-modified form. The Word Attack and Study Skills elements of WDRSD have been modified for use in grades one through six.

The school district of which school 07 is a part is unique in yet another aspect. Over one-fourth of the district's children are enrolled in nonpublic schools. That figure exceeds the state average by more than 10%.

Other descriptive data about school 07 includes: a student population of almost 400, an instructional staff of 14.5, a support staff of 3.8, and 2.5 paid aides. Further, the school is organized into 4 instructional units and the principal has 8 years of experience. Finally, the district professional staff per student ratio is 1:17.3.

School 08

School 08 is located in a large community of nearly 200,000 people. This school district, of which 08 is a part, has been experiencing declining enrollments for the past few years. School 08's enrollment of less than 300 is an example of the problem and the teachers fear that their school will be closed in the near future.

The school district of school 08 currently has a 7% minority population enrollment. Only about 10% of the district's children attend nonpublic schools. The professional staff per student ratio is 1:16.8. Currently, the district spends about $100 per pupil more than the state average costs.

School 08 has been involved in IGE for 7 years and the principal has had 29 years of experience. Architecturally, the school is an open design. Organizationally, the 12 classroom teachers are arranged into 3 units. Six support teachers work in the school, but there is no MAPE or special service unit. Two paid aides assist in the instructional program.

School 08 uses DMP in the kindergarten through grade two unit. The materials have not been modified. The school also reported partial use of the Individually Guided Motivation Program.

School 09

School 09 is located in a town of 5,000 residents. Less than 1% of the school district's children are minority students. The district's average costs per pupil are approximately $400 below the state average. The professional staff per student ratio districtwide is 1:18.2. Only about 1% of the district's children attend private or parochial schools.

A staff of 17 classroom teachers, 6 support teachers, and 4 aides service the more than 400 students. Organizationally, the school has four instructional units, one MAPE unit, and one special service unit.

Architecturally, the building is traditional in design, but sliding doors have been added to some adjoining rooms. The principal has 7 years of experience and began administering the school the year it adopted IGE.

At one time the school used the Word Attack element of the WDRSD, but has discontinued its use. The Comprehension element is still used by the reading resource teacher with children in grades one through six. The Study Skills element is also used to some extent.

School 10

School 10 is the third urban school in the research sample. As such, it shares the same district characteristics of schools 02 and 04: The average costs per pupil are higher than the state average (+$250); the nonpublic school enrollment is higher than the state average (+8%); the professional staff per student ratio is 1:18.8; and the minority population enrollment is 46.8%.

School 10 bears some resemblance to school 04. Both schools were built 4 years ago to house IGE programs. Principals at both schools have 4 years of administrative experience. Both schools have four instructional units arranged in pod or open design. Neither has a special service unit. In both sites, the minority population in the school is roughly one-third of the total student enrollment.

Differences exist between the schools in background characteristics as well. School 10 has 500 students and a staff of 15 classroom teachers, 3.8 support teachers, and 10 paid aides.

School 10 has modified the Word Attack and Study Skills elements of the WDRSD and uses both in kindergarten through grade six.

School 21

Located on the city's near north side, school 21 was involved in the initial phase of its school district's desegregation plan. In this initial phase, selected district schools, both minority and nonminority, were closed and the students integrated into other selected district schools. Previous to the desegregation effort, school 21 was a nonminority school. Like the other schools in this phase, attendance at school 21 is voluntary.

Physically, school 21 can be described as a school in transition. The exterior, like the surrounding houses and businesses, is drab, slightly depressing in appearance, and in need of repair. The interior is typical of the 1940 vintage, traditional in design with individual classrooms, wide halls, terrazo floors, and tile walls that result in the amplification of the slightest noise. On the other hand, the building appears to be well kept.

School 21 houses kindergarten through eighth grade with a student population of 620, 35% of whom are from ethnic minorities. The professional staff per student ratio is 1:16.75. This ratio is above the district 1:15.82 average.

The school's involvement in the use of DMP began in kindergarten through second grade. One grade level is to be added each successive year with the expectation that the DMP program will eventually be used in kindergarten through sixth grade. Currently, 50 kindergarten students (2 teachers), 75 first graders (3 teachers), and 75 second graders (3 teachers) are actively using DMP.

School 22

Located in the center of the city, school 22 is one of the district's magnet schools. Magnet schools are part of the second phase of the district's desegregation plan. The magnet "attraction" of school 22 is a diagnostic-prescriptive approach to reading and mathematics. Several features and accomplishments have contributed to its success:

1. Curricular programs that focus on individual needs of students.
2. Class-size ratio of 1 classroom teacher per 20 students.
3. Support staff for reading and mathematics instruction.
4. Services provided by a diagnostic team.
5. Formation of a Parent/Teachers Club that fosters positive interaction between multiracial, multiethnic groups of parents and staff.

Physically, school 22 fits the stereotype of an urban inner-city school. The exterior is in need of extensive repair. To reduce vandalism and prevent illegal entry, the school's windows are covered with heavy mesh screens, and the doors are "armor-plated"

with thick plywood sheets and kept tightly secured. Within the building, however, the only obvious debilitating factor seems to be the facility's accoustics. The reverberation of the "noise" off the floors, walls, and ceilings, creates a constant and detectable din thoughout the building.

Instructional programs are provided from prekindergarten through seventh grade: eighth grade is to be added next year. Nearly 700 students, (53% minority), attend school 22. The year preceding the establishment of the magnet program, school 22 was 100% minority. The students are served through a professional staff per student ratio of 1:10.71. This lower than district average ratio can be attributed to the features of the school's magnet program. The pattern of DMP useage in school 22 follows that of school 21. More specifically 75 kindergarteners (3 teachers), 80 first graders (4 teachers), and 100 second graders (5 teachers) are currently instructed through the DMP curricular program.

School 23

Situated in the city's near east side, school 23 is also one of the district's 10 magnet schools. The magnet "attraction" of school 23 is centered around the "back-to-the-basics" philosophy. Features of the program include:

1. curricular emphasis of mastery of all basic subjects: mathematics, language arts, social studies, and science;

2. structure, organization, and discipline are central to the teaching and learning process as well as student behavior;

3. emphasis given to the development of traditional American values: patriotism, citizenship, brotherhood, etc;

4. homework as an essential ingredient of the instruction program.

School 23 was a former district middle school that had a minority student population of 99.5%. Fronted by an expansive area of well-manicured lawn, the attractive exterior of the school is accentuated. This attractiveness is continued into the school's interior. Being of traditional architectural design, the effects of continued maintenance are obvious. Having been built as a middle school, it contains several features not typically found in elementary schools, i.e., classrooms of various sizes, several library and media centers, and a swimming pool.

The magnet program in school 23 is offered to 507 students, prekindergarten through eighth grade. A one-to-one ratio characterizes the minority-majority composition of the student population. Students having a hearing impairment are also mainstreamed in the regular instructional program. The professional staff per student ratio is below the district average at 1:12.07.

Like schools 21 and 22, DMP was initially implemented in kindergarten through grade two with DMP to be added to each succeeding grade level each successive year. Currently, 50 kindergartners (2 teachers), 50 first graders (2 teachers), 50 second graders (2 teachers), and 8 exceptional children (1 teacher) are being instructed in mathematics through the DMP curriculum.

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APPENDIX A

Initial Draft of a Structured Interview to Assess the Complexity of Use, and Level of Use of the IPM

TO INTERVIEWER:

Has the interviewee signed a human subjects release form? YES___ NO___
(If no, give them one.)

Decide on a personal code number. It can be the last four social security digits, phone number, birthdate, anything they can remember to use again. Jot it here_____. Do not write their name on this!

Ask for permission to tape. Explain reasons.

Date of interview _____ School Code _____ Status Code_____

BEGIN INTERVIEW

1. We want to talk to you about your _____ program. Would you please describe your _____ program. (Determine whether there are several different parts, e.g., basal, skills, etc. If there are several parts, run the interview focusing on one part then return to question two and ask about the other part(s).)

2. How many children do you have in your _____ program?

3. How many groups do you have in your _____ program?

4. How or what criteria were used to determine groups?

Criteria Categories

1. Learner behavior/characteristics.
   a. learning style
   b. motivation
   c. modes
2. I.Q.
3. Pretest information.
   a. standardized achievement test
   b. objective based (CRT) test
   c. past performance
   d. teacher judgment
   e. work sample/observation/P/P-test/performance test
4. Interest.
5. Age/grade level.

5. Who decided that you would have that number of groups?

(ME) ↓ (Go to Q. 8)

(THE UNIT or SOMEONE ELSE) ↓ (Go to Q. 6)

Interview
(continued) 2.

6. Do you break your _____ class down into subgroups?

7. How or what criteria were used to determine to form the subgroups?

8. How often do you change the groups? (Probe for unit decisions and individual decisions.)

9. What criteria do you use for regrouping children?

Criteria Categories

1. Learner behavior/characteristics.
   a. learning style
   b. motivation
   c. modes
2. I.Q.
3. Pretest information.
   a. standardized achievement test
   b. objective based (CRT) test
   c. past performance
   d. teacher judgment
   e. work sample/observation/P/P-test/performance test
4. Interest.
5. Age/grade level.

10. Are there different ways children can learn the same objective?

(YES) ↓ (Go to Q. 11) (NO) ↓ (Go to Q. 13)

11. About how many different ways do you usually have for children to learn an objective?

12. Tell me about these different way(s).

13. Who else is involved, besides you, in working with the children in your _____ group?

14. What do you see as the strengths in your _____ program?

15. What do you see as the weaknesses in your _____ program?

16. What, if anything, have you attempted to do about these weaknesses?

17. Do you work with others, outside your unit, with the _____ program?

(YES) (NO) ↓ (Go to Q. 26)

Interview
(continued) 3.

18. Have you made any changes in your _____ program as a result of this collaboration?

(YES) (Go to Q. 19) (NO) (Go to Q. 26)

19. How do you work together?

20. What things do you share with each other?

21. How frequently do you work together and share?

_____ per _____

22. What do you see as the effects of this collaboration?

23. Do you talk with others about your collaboration?

(YES) (NO)

24. Have you done any formal or informal evaluation of how your collaboration is working?

(YES) (Don't Know) (NO)

25. What plans do you have for this effort in the future?

26. Do you ever talk with others (inside or outside your unit) about your _____ program?

(YES) (NO)

26a. What do you tell them?

27. Have you considered any alternatives or different ways of doing _____?

(YES) (NO)

28. Are you doing any evaluating, either formally or informally, that would affect your _____ program?

(YES) (NO)

Interview
(continued) 4.

29. Have you received any feedback from students that would affect your _____ program?

(YES) (NO)

29a. What have you done with the information that you get?

30. Have you made any changes recently in your _____ program?

(YES) (NO)

30a. What changes did you make? (Record below.)

CHANGES	WHY MADE (30b.)	HOW RECENTLY (30c.)
_____	_____	_____
_____	_____	_____
_____	_____	_____

31. Are you considering making any other changes?

(YES) (NO)

32. Looking ahead to later this year, what plans, if any, do you have in relation to your _____ program?

33. Are you considering or planning to make your major modifications to your _____ program?

(YES) (NO)

34. Do you group children in any other subject areas? (YES) (NO)

Which ones?

(To interviewer: If their _____ program has more than one part, go back to question number 2 and do the interview again with the other part.)

APPENDIX B

Survey Form Used to Establish and Describe the Sampling Frame for Selecting Wisconsin Research Sites

Your School

NAME AND ADDRESS OF SCHOOL _____ TELEPHONE _____

How many years has your school been an IGE school? _____

How many Instructional Units do you have with regular classroom teachers? _____

How many MAPE Units do you have in Music, Art, Physical Education only? _____

How many Special Service Units do you have in EMR, LD, Guidance, etc.? _____

How many students attend your school? _____

How many classroom teachers do you have? _____

How many support staff do you have in Music, Art, PE, EMR, LD, etc.? _____

How many paid aides do you have? _____

How would you best describe your building design? (Please check)

_____ Traditional "egg crate" single classroom design

_____ Pod design

_____ Open design

_____ Other

Who is the building principal? _____ How many years? _____

Wisconsin R&D Center Products

The Wisconsin Design

	Developing Mathematical Processes DMP	Word Attack	Comprehension	Study Skills	Creative Reading	Interpretive Reading	Self-Directed Reading	Individually Guided Motivation IGM	Pre-Reading Skills PRS
Please check any of these curricular materials currently in use.									
Please check any of these curricular materials you have used but are no longer using.									
How many years have you or did you use these curricular materials?									
Please check any of these curricular materials your school is considering adopting.									
Please list the grade level(s) in which these curricular materials are currently being used.									
Have you modified any of these curricular materials?	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No
Are these curricular materials being used in a nongraded or multiaged setting?	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No	Yes No
Name the person in your school currently using the curricular materials who can be contacted for further information. (Optional)									

Non R&D Center Products

	Reading	Mathematics	Language Arts	Spelling	Penmanship
Please indicate the name of the publisher or series.					
Please list the grade level(s) in which the curricular materials are currently being used.					
Have you made any modifications in the publishers' program?					
Has your school or district developed its own scope or sequence?					
Are these curricular materials being used in a nongraded or multiaged setting?					
Name the person in your school currently using the curricular materials who can be contacted for further information. (Optional)					

	Science	Social Studies	Music	Art	Physical Education	Other
Please indicate the name of the publisher or series.						
Please list the grade level(s) in which the curricular materials are currently being used.						
Have you made any modifications in the publishers' program?						
Has your school or district developed its own scope or sequence?						
Are these curricular materials being used in a nongraded or multiaged setting?						
Name the person in your school currently using the curricular materials who can be contacted for further information. (Optional)						

Are there any special features of your school's instructional program that you feel are worthy of special mention? Please briefly describe them.

What special inservice needs do you feel would improve your school's instructional program? Please briefly describe them.

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